ORDER NO. AD8907231C5
A2

# Service Manual

Cassette Deck

## Dolby NR-Equipped Stereo Cassette Deck

# RS-B555

DOLBY B·C NR HX PRO*

**Color**

(K)... Black Type

**Area**

| Country Code | Area | Color |
|---|---|---|
| (P) | U.S.A. | (K) |
| (PC) | Canada. | |
| (E, E5) | Continental Europe. | |
| (EB) | Great Britain. | |
| (EG) | F.R. Germany and Italy | |

* HX Pro headroom extension originated by Bang Olufsen and manufactured under license from Dolby Laboratories Licensing Corporation.
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**MECHANISM SERIES: AR350**

## SPECIFICATIONS

### CASSETTE DECK SECTION

| | |
|---|---|
| **Deck system** | Stereo cassette deck |
| **Track system** | 4-track, 2-channel |
| **Heads** | |
| **Rec/play** | Permalloy head |
| **Erasing** | Double-gap ferrite head |
| **Motors** | |
| **Capstan** | Direct drive DC motor |
| **Reel table drive** | DC motor |
| **Recording system** | AC bias |
| **Bias frequency** | 80 kHz |
| **Erasing system** | AC erase |
| **Tape speed** | 4.8 cm/sec. (1⅞ ips) |
| **Frequency response** | |
| **NORMAL** | 20 Hz~18 kHz |
| | 20 Hz~16 kHz (DIN) |
| **$CrO_2$** | 20 Hz~18 kHz |
| | 20 Hz~17 kHz (DIN) |
| **METAL** | 20 Hz~19 kHz |
| | 20 Hz~18 kHz (DIN) |
| **S/N** (signal level=max recording level, $CrO_2$ type tape) | |
| **Dolby C NR on** | 74 dB (CCIR) |
| **Dolby B NR on** | 66 dB (CCIR) |
| **Dolby NR off** | 56 dB (A weighted) |
| **Wow and flutter** | 0.05% (WRMS) |
| | ±0.15% (DIN) |
| **Fast forward and rewind times** | Approx. 90 seconds with C-60 cassette tape |
| **Input sensitivity and impedance** | |
| **MIC** | 0.25 mV/400Ω~10 kΩ |
| **LINE** | 60 mV/47 kΩ |
| **Output voltage and impedance** | |
| **LINE** | 400 mV/800Ω |
| **HEADPHONES** | 125 mV/8Ω |
| | (8Ω~600Ω) |

### GENERAL

| | |
|---|---|
| **Power consumption** | 21 W |
| **Power supply** | |
| **For U.S.A. and Canada** | AC 120 V, 60 Hz |
| **For Great Britain** | AC 240 V, 50/60 Hz |
| **For others** | AC 220 V, 50/60 Hz |
| **Dimensions (W × H × D)** | 430 × 125 × 290 mm |
| | ($16^{15}/_{16}$″ × $4^{15}/_{16}$″ × $11^{13}/_{32}$″) |
| **Weight** | 4.4 kg (9.7 lb.) |

**Note:**

Specifications are subject to change without notice.
Weight and dimensions are approximate.

Technics

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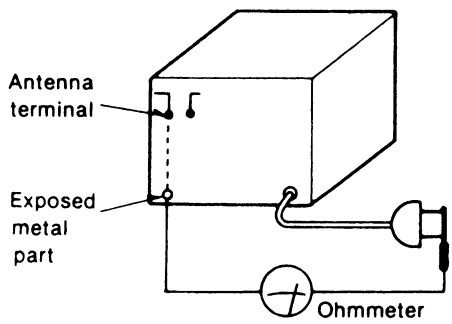
# ■ SAFETY PRECAUTION (This "safety precaution" is applied only in U.S.A.)

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

## • INSULATION RESISTANCE TEST

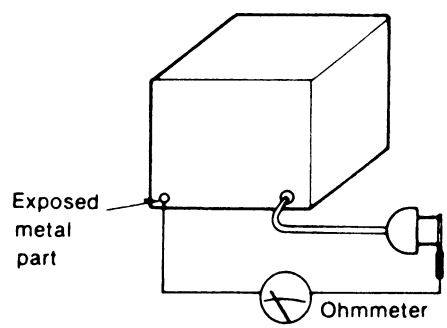
1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between 3MΩ and 5.2MΩ to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

**Note:** Some exposed parts may be isolated from the chassis by design. These will read infinity.




(Fig. A)

Resistance = 3MΩ—5.2MΩ




(Fig. B)

Resistance = Approx ∞

4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

# ■ ACCESSORIES

- Stereo connection cables ..... 2
  [SJP2249-3]
- AC power supply cord ..... 1
  [SFDAC05E03: (E, E5, EG)
  SJA175: (PC)
  SJA175-1: (P)
  SJA193-1: (EB)]

# FRANÇAIS

## METHODES DES MEASURES ET REGLAGES

### Reglage Azimutal de la tete

1. Faire jouer la portion du réglage de l'azimuth (8kHz, −20dB) de la bande d'essai (QZZCFM). Ajuster la vis de la mise au point azimutale jusqu'à ce que les sorties du canal de gauche et du canal de droite soient maximisées et que la forme d'onde de Lissajous, comme il est illustré, approche de 0 degré.

**Nota:**

Si le canal de gauche et canal de droite ne sont pas maximisés au même point, régler le point où les niveaux de chaque canal sont maximiséset égaux.

2. Effectuer le même r&e 19 mglage sur le mode d'audition.

### Vérification de la différence de niveau pour les deux sens de rotation

3. Introduire une bande métal vierge prévue pour les essais (QZZCPZ) et vérifier que la différence de niveau pour lés déux sens de rotation est inférieure à 1dB.
4. Après cela, mettre une goutte de vernis de blocage sur la vis de réglage de l'azimut.

### Reglage de L'amplification de Lecture

1. Faire jouer la partie réglée de l'amplification (315Hz, 0dB) de la bande d'essai (QZZCFM).
2. Régler la platine 1: **VR1** (canal de gauche) [[**VR2** (canal de droite)]] de telle sorte que la sortie soit en deçà de la valeur standard.

### Reponse en Frequence de la Lecture

1. Faier jouer la partie de la réponse en fréquence (315Hz, 12.5kHz, −63Hz, −20dB) de la bande d'essai (QZZCFM).
2. S'assurer que la réponse en fréquence soit en deçà de la plage montrée dans la **Fig. 5**, à la fois pour le canal de gauche et le canal de droite.

### Réglage du bouchon de polarisation

1. Introduire la cassette d'essai vierge (QZZCRZ) et régler l'appareil pour l'enregistrement.
2. Régler **L1** (L-CH) et (**L2** (R-CH) de sorte que la tension entre **TP1** (**TP2**) et la masse (**GND**) soit inférieure à la valeur minimale.



### Reponse en Frequence Totale

1. Introduire la bande d'essai vierge normale (QZZCRA) et régler l'appareil sur le mode d'intermission d'un disque.
2. Appliquer un signal d'entrée de référence (1kHz, −24dB) par l'intermédiaire d'un atténuateur.
3. Diminuer le signal de 20dB et régler la fréquence de 50Hz~10kHz.
4. Enregistrer le balayage de fréquence.
5. Faire jouer le signal enregistré et s'assurer qu'il soit en deçà de la plage montrée à la **Fig. 8** en comparaison à la fréquence de référence (1kHz).
6. S'Il n'est pas en deçá de la plage standard, régler **VR301** (canal de gquche) et **VR302** (canal de droite) de telle sorte que le niveau de fréquence soit en deçá de la plage standard.
7. Répéter les étapes 2~6 ci-dessus en utilisant la band $CrO_2$ (QZZCRX) et la bande métallisée (QZZCRZ) en augmentant la plage de fréquence à 12.5kHz (50Hz~12.5kHz).
8. S'assurer que le niveau soit en deçà de la plage montrée à la **Fig. 9**.

### Reglage de L'amplification Totale

1. Introduire la bande d'essai vierge normale (QZZCRA) et régler l'appareil sur le mode d'intermission d'un disque.
2. Appliquer un signal d'entrée de référence (1kHz, −24dB). Diminuer la sortie de telle sorte que son niveau devienne de 0.4V.
3. Enregistrer ce signal d'entrée.
4. Faire jouer le signal enregistré à l'étape 3 ci-dessus, et s'assurer que la sortie en deçà de la valeur standard.
5. Si elle n'est pas en deçà de la valeur standard, régler **VR3** (canal de gauche) et **VR4** (canal de droite).
6. Répéter les étapes 2~5 ci-dessus jusqu'à ce que la sortie soit en deçà de la valeur standard.

# ESPAÑOL

## METODOS DE AJUSTE Y MEDIDA

### Ajuste Azimutal de Cabeza

1. Reproducir la porción de ajuste azimutal (8kHz, −20dB) de la cinta de prueba (QZZCFM). Variar el tornillo de ajuste azimutal hasta que las salidas del CH-I y CH-D se maximicen y forma de onda de lissajous, como ilustrado, se acerque a grado 0.

**Nota:**

Si CH-I y CH-D no son maximizados en el mismo punto, ajustar al punto donde los niveles de cada canal sean maximizados e igualados.

2. Efectuar el mismo ajuste en la modalidad de reproducción.

### Comprobación de la diferencia de nivel de giro hacia adelante y hacia atrás

3. Reproduzca la parte del adjuste de ganancia (315Hz, 0dB) de la cinta de prueba (QZZCFM) y luego asegúrese de que la diferencia de nivel de giro hacia adelante y hacia atrás sea menor que 1dB.
4. Dcspués del ajustc, aplique pintura de fijación al tornillo de ajuste del azimut.

### Ajuste de Ganancia de Reproduccion

1. Reproducir la porción ajustada de ganancia (315Hz, 0dB) de la cinta de prueba (QZZCFM).
2. Ajustar la Platina 1: **VR1** (CH-I) [[**VR2** (CH-D)]] de manera que la salida esté dentro del valor estándar.

### Respuesta de Frecuencia de Reproduccion

1. Reproducir la parte de respuesta de frecuencia de reproducción (315Hz, 12.5kHz∼63Hz, −20dB) de la cinta de prueba (QZZCFM).
2. Asegurarse de que la respuesta de frecuencia esté dentro de la gama mostrada en la **Fig. 5** para ambos CH-I y CH-D.

### Ajuste del Circuito Trampa de Polarizacion

1. Introduzca la cinta virgen de metal (QZZCRZ) para pruebas y ponga el aparato en el modo de grabación.
2. Ajuste **L1** (canal izq.) ((**L2** (canal der.)) de manera que la tensión de salida entre **TP1** (**TP2**) y **GND** (Tierra) sea menor que el valor mínimo.



### Respuesta de Frecuencia Total

1. Poner una cinta virgen normal (QZZCRA) y poner la unidad en la modalidad de Pausa de Grabación.
2. Aplicar la señal de entrada de referencia (1kHz, −24dB) a través de un atenuador.
3. Atenuar la señal por 20dB y ajustar la frecuencia de 50Hz∼10kHz.
4. Grabar el barrido de frecuencia.
5. Reproducir la señal grabada y asegurarse de que esté dentro de la gama mostrada en la **Fig. 8** en comparación con la frecuencia de referencia (1kHz).
6. Si no está dentro de la gama de frecuencia, ajustar **VR301** (CH-I) y **VR302** (CH-D) de manera que el nivel de frecuencia esté dentro de la gama estándar.
7. Repetir los pasos 2∼6 de arriba utilizando la cinta $CrO_2$ (QZZCRX) y la cinta metálica (QZZCRZ) incrementando la gama de frecuencia a 12.5kHz (50Hz∼12.5kHz).
8. Asegurarse de que el nivel est&e 19mdentro de la gama mostrada en la **Fig. 9**.

### Ajuste de Ganancia Total

1. Insertar la cinta de prueba en blance normal (QZZCRA) y poner la unidad en modalidad de pausa de Grabación.
2. Aplicar la señal de entrada de referencia (1kHz, −24dB). Atenuar la salida de manera que su nivel se haga 0.4V.
3. Grabar la señal de entrada.
4. Reproducir la señal grabada en el paso 3 de arriba y asegurarse de que la salide esté dentro del valor estándar.
5. Si no está dentro del valor estándar, ajustar **VR3** (CH-I) y **VR4** (CH-D).
6. Repetir el paso 2∼5 de arriba hasta que la salida esté dentro del valor estándar.



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ORDER NO. AD890723IC5-A

Cassette Deck

# RS-B555
# RS-B655

## DEUTSCH

## MESSUNGEN UND EINSTELL METHODEN

### Tonkopf-Azimuteinstellung

1. Spielen Sie auf dem Testband (QZZCFM) den Teil für die Azimuteinstellung (8kHz, −20dB) ab. Drehen Sie die Azimuteinstellschraube so lange, bis die Abgaben des L-K und R-K den Höchstwert erreichen, und die Lissajosscghe wellenfigur sich, wie abgebildet, 0 Grad nähert.

**Anmerkung:**

When L-K und R-K nicht auf demselben Punkt ihren Höchstwert erreichen, stellen Sie beide Kanäle auf den jeweiligen Höchstwert und gleichen dann aus.

2. Nehmen Sie denselben Einstellvorgang in der Wiedergabestellung vor.

### Prüfung des Pegelunterschiedes bei Vorwärts- und Rückwärtsdrehung

3. Den Abschnitt für Verstärkungseinstellung (315Hz, 0dB) des Prüfbandes (QZZCFM) wiedergeben und sicherstellen, daß der Pegelunterschied bei Vorwärts- und Rückwärtsdrehung kleiner als 1dB ist.
4. Nach der Einstellung Schrauben-Sicherungsmittel an die Azimuth-Einstellschraube geben.

### Einstellung der Wiedergabeverstärkungsregelung

1. Spielen Sie auf dem Testband (QZZCFM) den Teil für die Einstellung der Verstärkungsregelung (315Hz, 0dB) ab.
2. Stellen Sie **VR1** (L-K) [[**VR2** (R-K)]] so ein, daß die Abgabe den Normwert erfüllt.

### Wiedergabefrequenzaang

1. Spielen Sie auf dem Testband (QZZCFM) den Teil für den Frequenzgang (315Hz, 12,5kHz~63Hz, −20dB) ab.
2. Achten Sie darauf, daß der Frequenzgang für beide Kanäle (L-K, R-K) in dem in **Abb.5** gezeigten Bereich liegt.

### Wechselstrom-Vormdgnetisierungseinstellung

1. Das unbespielte Metalltestband (QZZCRZ) einlegen, und das Gerät auf Aufnahme Schalten.
2. **L1** (L-CH) (**L2** (R-CH)) so einstellen, daß die Ausgangsspannung zwischen **TP1** (**TP2**) und **GND** geringer als der Minimalwert ist.

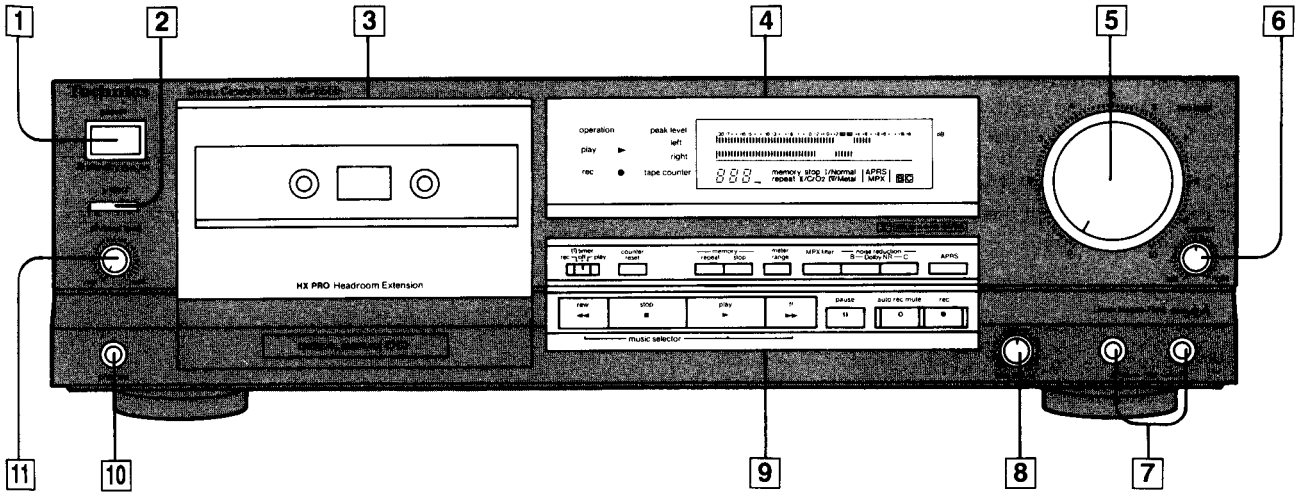
## Gesamtfrequenzgang

1. Legen Sie das normale Leertestband (QZZCRA) ein und stellen das Gerät auf Aufnahme-/Pause-Betrieb.
2. Geben Sie über einen Lautstärkeregler ein Bezugseingabesignal (1kHz, −24dB) ein.
3. Stellen Sie das Signal auf 20dB und justieren die Frequenz von 50Hz~10kHz.
4. Nehmen Sie das Wobbelsignal auf.
5. Geben Sie das aufgenommene Signal wieder und achten darauf, daß dieses sich im Vergleich zur Bazugsfrequenz (1kHz) in dem in **Abb. 8** aufgezeichneten Bereich befindet.
6. Sollte das Signal nicht im Normbereich liegen, justieren Sie **VR301** (L-K) und **VR302** (R-K), so daß der Frequenzpegel mit der Norm übereinstimmt.
7. Wiederholen Sie die Schritte 2~6 und verwender das $CrO_2$ Band (QZZCRX) und das Metallband (QZZCRZ). Der Frequenzbereich wird auf 12.5kHz (50Hz~12.5kHz) angehoben.
8. Achten Sie darauf, daß sich der Frequenzpegel in dem in **Abb. 9** aufgezeigten Bereich befindet.

## Einstellung der Gesamtverstärkungsregelung

1. Legen Sie das normale Leertestband (QZZCRA) ein und stellen das Gerät auf Aufnahme-/Betrieb.
2. Legen Sie ein Bezugseingabesignal (1kHz, −24dB) an. Stellen Sie das Ausgangssignal auf einen Pegel von 0.4V ein.
3. Nehmen Sie das Eingabesignal auf.
4. Geben Sie das in Schritt 3 oben aufgenommene Signal wieder und achten Sie darauf, daß das Ausgangssignal mit dem Normwert übereinstimmt.
5. Sollte der Wert nicht innerhalb der Norm liegen, justieren Sie **VR3** (L-K) und **VR4** (R-K).
6. Wiederholen Sie die Schritte 2~5 von oben so lange, bis das Ausgangssignal im Normbereich liegt.

# ■ FRONT PANEL CONTROLS AND FUNCTIONS




**1 Power "standby ⏻ /on" switch (power "standby ⏻ /on")**
This switch switches ON and OFF the secondary circuit power only. The unit is in the "standby" condition when this switch is set to the "standby ⏻ " position. Regardless of the switch setting, the primary circuit is always "live" as long as the power cord is connected to an electrical outlet.

**2 Eject button (⏏ eject)**
This button can be used to open the cassette holder.

**3 Cassette holder**

**4 Display section**

**5 Recording-level control (rec level)**
This control can be used to regulate the recording level and the peak level.

**6 Recording-balance control (balance)**
Use this control to balance the left and right sound levels during recording.

**7 Microphone jacks (mic)**

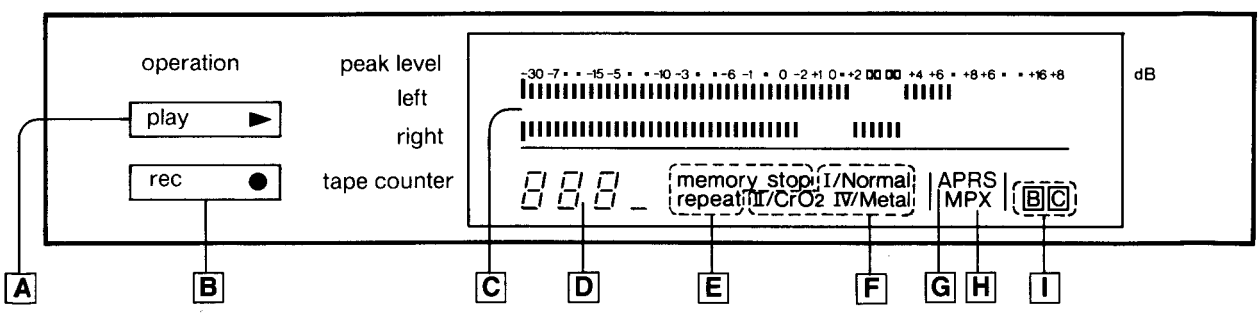
**8 Bias-adjustment control (bias adjust)**
The frequency response for each tape type can be equalized by using this control.

**9 Operation section**

**10 Headphones jack (phones)**

**11 Headphones volume control (phones level)**

## Display section




**A Play back indicator (play/▷)**
When this indicator illuminates steadily, it indicates that this tape deck is in the playback mode or the recording mode. When it flashes continually, this is an indication that this tape deck is in the pause mode or the recording stand-by mode.

**B Recording indicator (rec/○)**
This indicator illuminates to indicate that this tape deck is in the recording stand-by mode, or is recording.

**C Input level meter (peak level)**
During playback, this meter indicates the level of the recorded sound.
During recording, it indicates the level being recorded, adjusted by the recording-level control.

**D Tape counter**
Indicates the amount of tape movement.

### E Memory-mode indicators (memory stop/repeat)
Each indicator illuminates to show which of the memory mode was set by the memory-mode buttons.

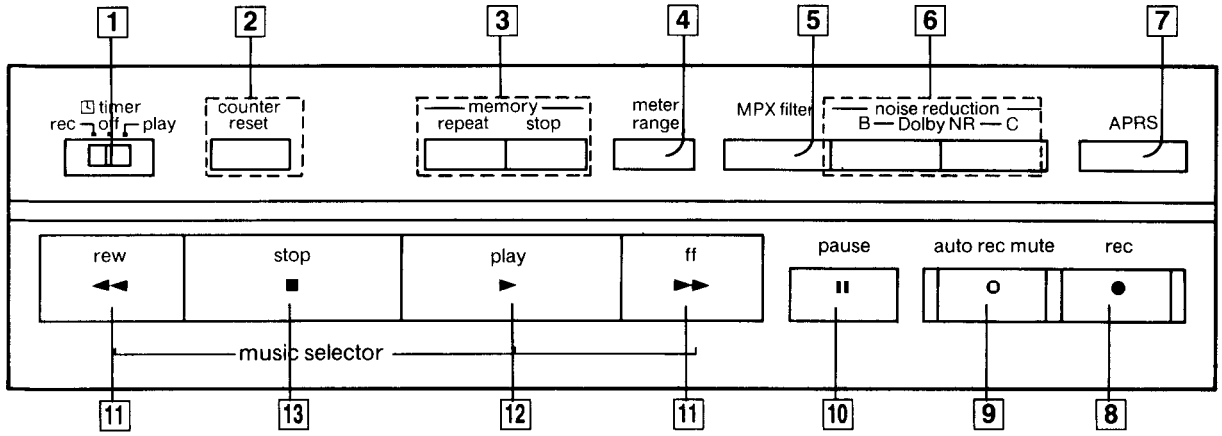
### F Tape-select indicators
The type of tape being used will be automatically detected and the indicator will illuminate.

### G APRS indicator (APRS)
Illuminates to indicate that the "APRS" is set to "on" in the recording stand-by mode.

### H Multiplex filter indicator (MPX)
Illuminates to indicate that the multiplex filter is set to "on".

### I Dolby noise-reduction indicators (B, C)
Each indicator illuminates to show the type of Dolby noise-reduction system selected by pressing one of the Dolby noise-reduction buttons.

## Operation section




### 1 Timer switch (timer)
This switch is used to automatically begin a tape recording or tape playback at a certain time, selected by a timer (not included).

### 2 Counter reset button (counter reset)
This button can be used to reset the tape counter indication to "000".

### 3 Memory-mode buttons (memory repeat/stop)
**stop:** This button can be used to rewind the tape to the preset "000" point when the rewind (◀◀) button is pressed.

**repeat:** This button can be used to set this unit to the "A-B repeat" mode.

### 4 Meter-range selector (meter range)
This selector can be used to select the meter-range display of the input level meter.

### 5 Multiplex filter switch (MPX filter)
This switch can be used during the recording of an FM stereo broadcast that employs Dolby noise reduction so as to prevent misoperation of the Dolby noise reduction.

### 6 Dolby noise-reduction buttons (noise reduction)
These buttons are used to reduce the hissing noise heard from the tape. This unit is provided with both the B-type and C-type noise-reduction systems.

### 7 APRS button (APRS)
This button can be used to hold the peak level while monitoring the input sound.
The "APRS" can only be used in the recording stand-by mode.

### 8 Record button (rec/●)
This button can be used to change the tape deck to the recording stand-by mode.

### 9 Automatic-record-muting button (auto rec mute/○)
This button can be used to make a silent interval on the tape being recorded on tape deck.

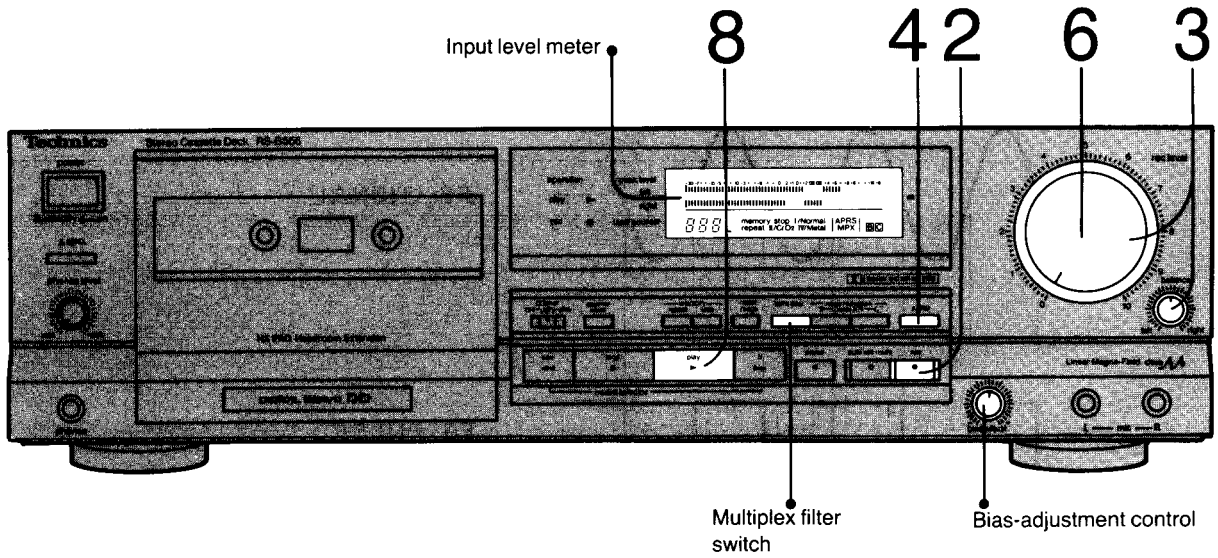
### 10 Pause button (pause/❚❚)
This button can be used to temporarily stop the tape playback or recording of tape deck.

### 11 Rewind/fast-forward/search buttons (rew/◀◀/ff/▶▶)
These buttons can be used to fast forward or rewind the tape, or to easily search for the tune's beginning of the tape quickly.

### 12 Playback button (play/▶)
This button can be used to start the playback or recording of the cassette.
(The tape will then begin moving in the left-to-right direction.)

### 13 Stop button (stop/■)
This button can be used to stop tape movement.

# ■ RECORDING WITH HIGH TONE QUALITY




## APRS function

Because the dynamic range of cassette tape is narrower than the dynamic range of a digital source, the recording will be too noisy if the recording level setting is too low, and, conversely, the recorded sound will be distorted if the setting is too high.
It was for this reason that it has always been recommended that the signals to be recorded be first (before recording) input to the cassette deck and the recording level then be set while watching the level meter, but, for former conventional level meter equipped with the peak-hold function, it was necessary to re-adjust and input the signals again if the level setting was too high or too low.

This unit, however, is equipped with the **APRS: Advanced Precise Recording-level System**, which holds and displays the maximum peak of the input signal level, so that once the peak level of the source is held, there is no necessity to re-input the source signals, and the optimum recording level can be set.

- The APRS function can be used only during the recording-standby mode.

**1** **Prepare for recording as described in steps 1 to 6 of the "Recording" section.**

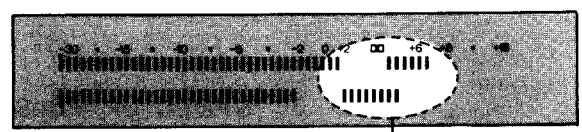
**2** [rec]
**Press the record button.**
(The recording indicator will illuminate and the playback indicator will flash continuously; the unit will be in the recording stand-by mode.)

**3** [rec level]/[balance]
**Set the recording-level control and the recording-balance control to the suitable position for the sound source.**

**4** [APRS]
**Press the APRS button.**
(The APRS indicator will illuminate.)

**5** **Play the sound source to be recorded, from beginning to end.**
[The peak level (the highest level of the input signal) of the sound source will be displayed and held on the input-level meter.]

Input level meter




**Note:**
The range within which the peak level can be held is −8 dB to +16 dB. Note that the APRS indicator will flash continuously if the peak level of the sound source is input at a level that exceeds the maximum recording level (+16 dB).
If that happens, press the APRS button to cancel the APRS function, and then reset the recording level and set the APRS once again.
Also note that the peak level cannot be held to less than −8 dB.

**6** [rec level]
**Using the recording-level control, adjust the peak level to the desired setting.**
The peak level will move to the right when the recording-level control is turned to the right, and will move to the left when the recording-level control is turned to the left.

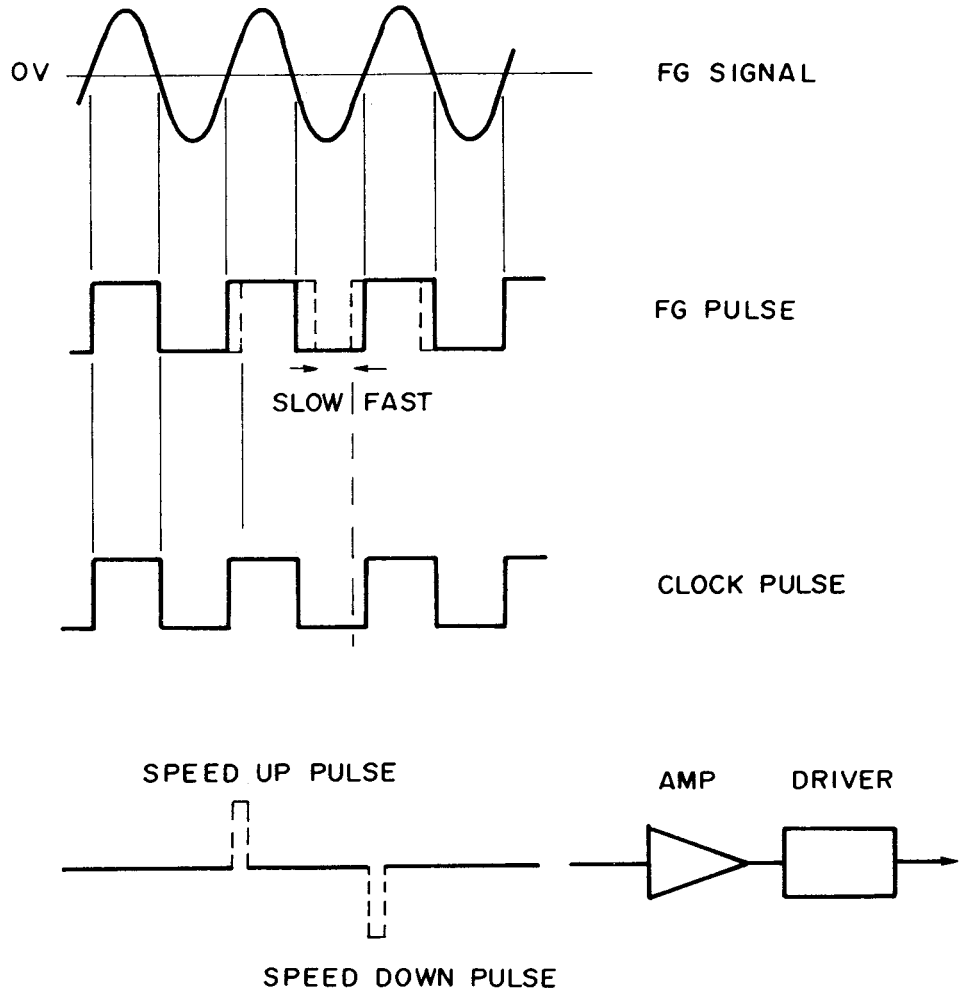
- The recording-balance control cannot be used to adjust the peak level.

**7** **Begin playing the sound source from the beginning once again.**

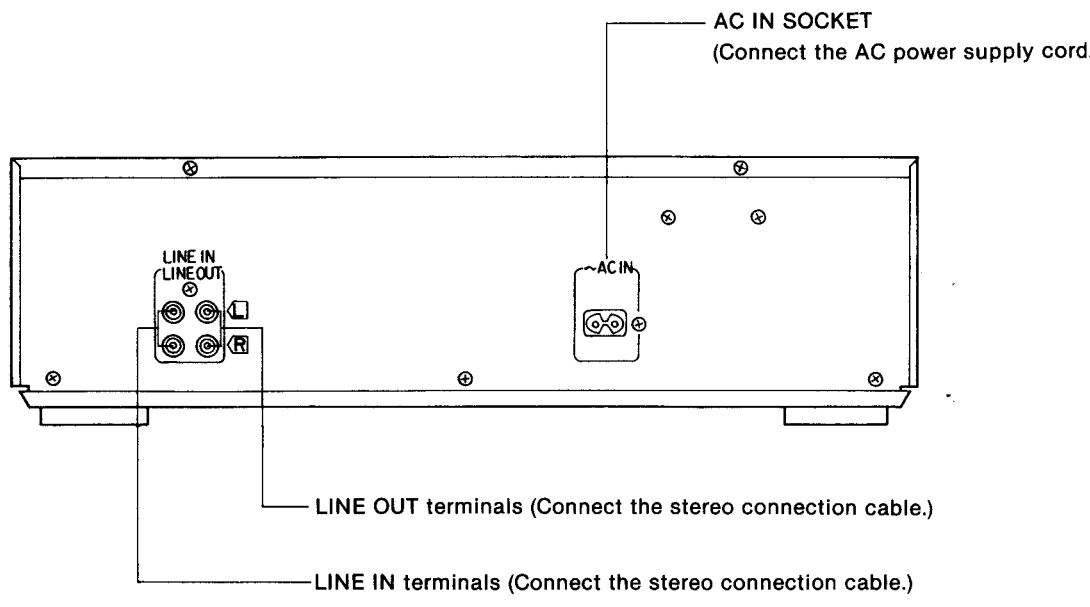
**8** [play]
**Press the playback button.**
(The playback indicator will illuminate steadily, and the recording will begin.)
The APRS indicator will switch OFF, and the indication of the input-level meter will return to the ordinary peak-hold mode.

## ■ OUTLINE OF THE DIRECT DRIVE MOTOR SYSTEM

The capstan motor is actuated by the DD motor digital servo system. The FG pulse is generated after the detection of the zero crosspoint, and the reference signal generated from the quartz oscillator is compared with this FG pulse. From this comparison, the accelerated and reduced speed pulses are generated, causing the driving coil to function.



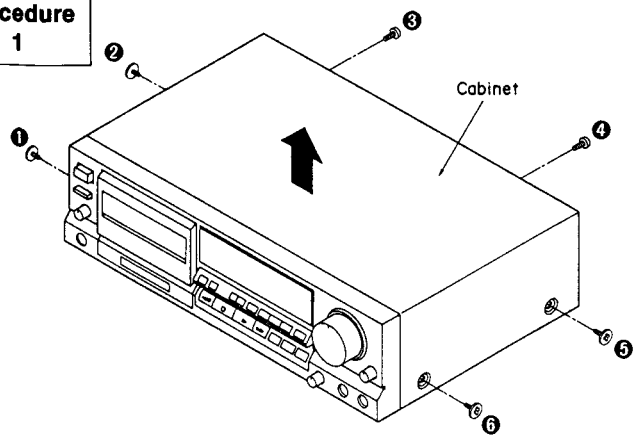

## ■ CONNECTIONS



# ■ DISASSEMBLY INSTRUCTIONS

**"ATTENTION SERVICER"**
Some chassis components may have sharp edges. Be careful when disassembling and servicing.

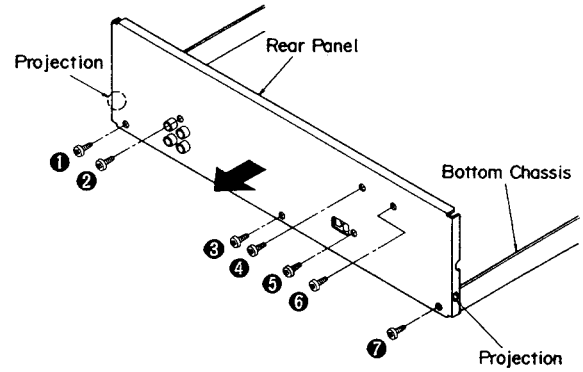
| Ref. No. 1 | Removal of the cabinet |
|---|---|
| Procedure 1 | |



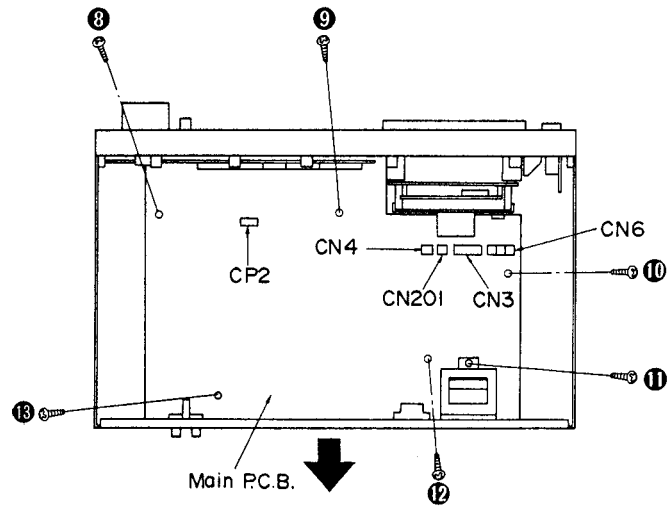

• Remove the 6 screws (❶~❻).

| Ref. No. 2 | Removal of the main P.C.B. |
|---|---|
| Procedure 1→2 | |

1. Remove the 7 screws (❶~❼).
2. Remove the rear panel from the projection of the bottom chassis.

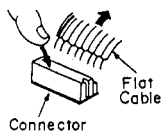



3. Remove the 6 screws (❽~⓭).
4. Remove the 1 connector (CP2).
5. Remove the 4 flat cables (CN3, CN4, CN6, CN201).
6. Remove the main P.C.B. in the direction of the arrow.

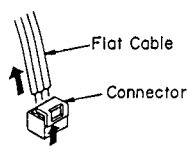



### How to remove the flat cable

• Pull out the flat cable while pressing the connector.



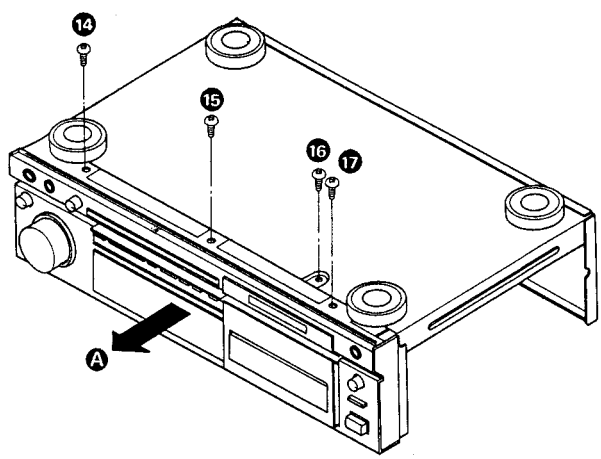

1. Lift the connector.
2. Pull out the flat cable.



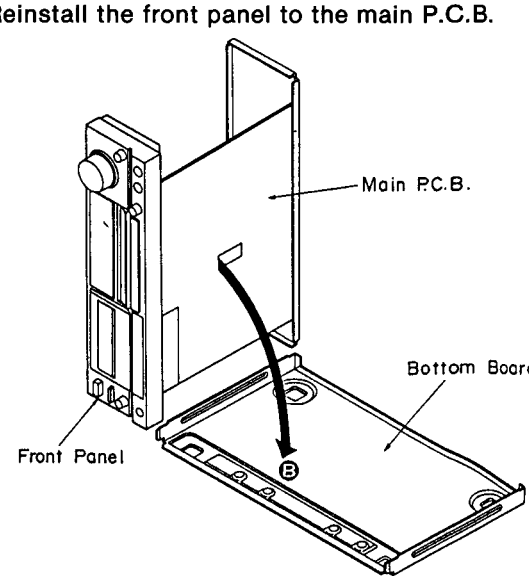

### How to check the main P.C.B.

• When checking the soldered surfaces of main P.C.B. and replacing the parts, do as show.

1. Remove the 9 screws (❶, ❸, ❼~⓭) in above figure.
2. Remove the 4 screws (⓮~⓱).
3. Remove the front panel in the direction of the arrow Ⓐ.

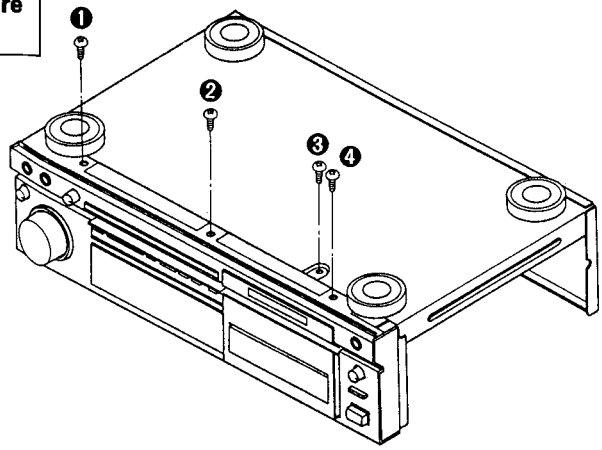


4. Remove the bottom board in the direction of the arrow Ⓑ.
5. Reinstall the front panel to the main P.C.B.



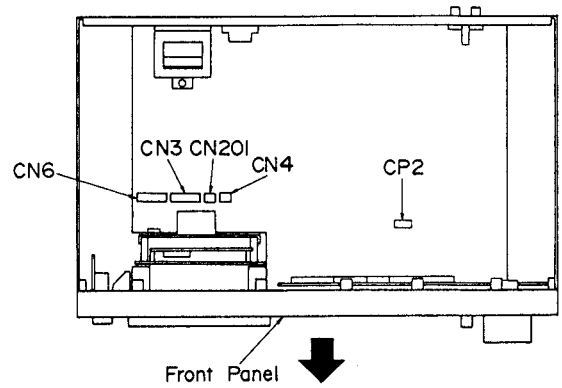
**Ref. No. 3** **Removal of the front panel**

**Procedure 1→3**




1. Remove the 4 screws (❶~❹).

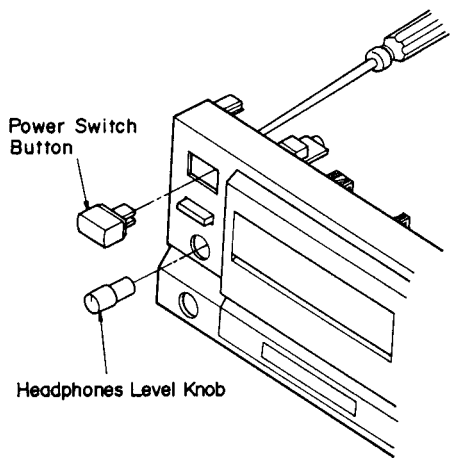
2. Remove the 1 connector (CP2).
3. Remove the 4 flat cables (CN3, CN4, CN6, CN201).



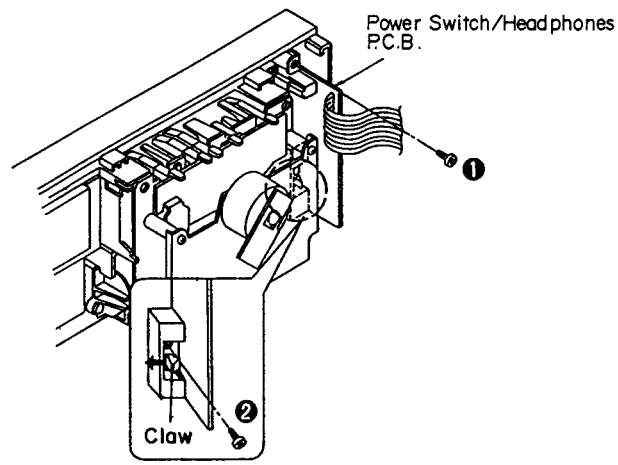

4. Remove the front panel in the direction of the arrow.

**Ref. No. 4** **Removal of the power switch/ headphones P.C.B.**

**Procedure 1→3→4**



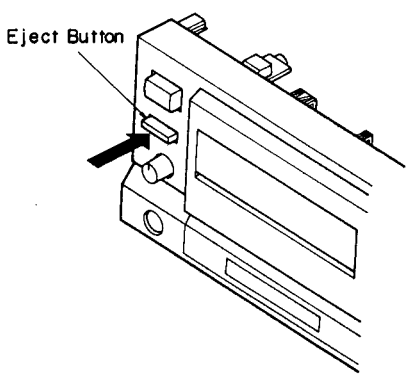

1. Remove the power switch button by pushing it from behind the front panel.
2. Pull out the headphones level knob.



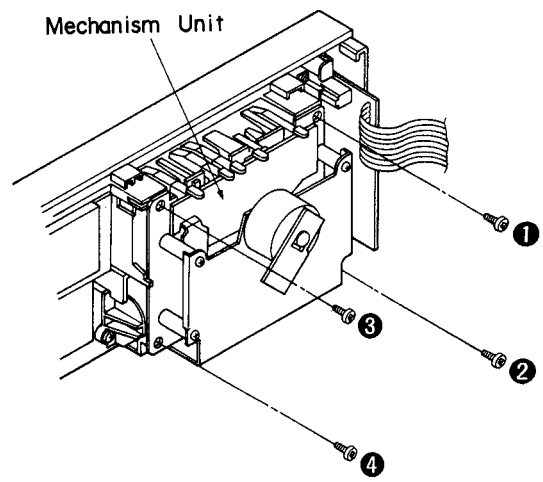

3. Remove the 2 screws (❶~❷).
4. Release the 1 claw.

**Ref. No. 5** **Removal of the mechanism unit**

**Procedure 1→3→5**

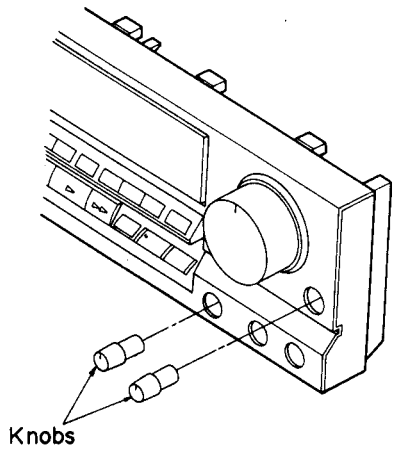



1. Push the eject button.

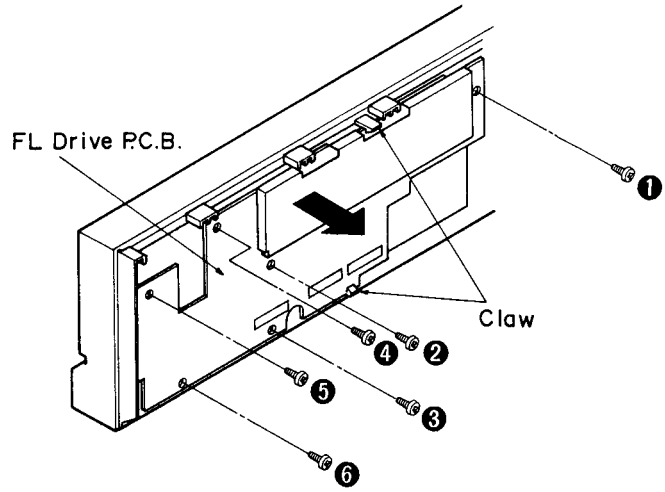



2. Remove the 4 screws (❶~❹).

| Ref. No. 6 | Removal of the FL drive P.C.B. |
|---|---|
| Procedure 1→3→6 | |

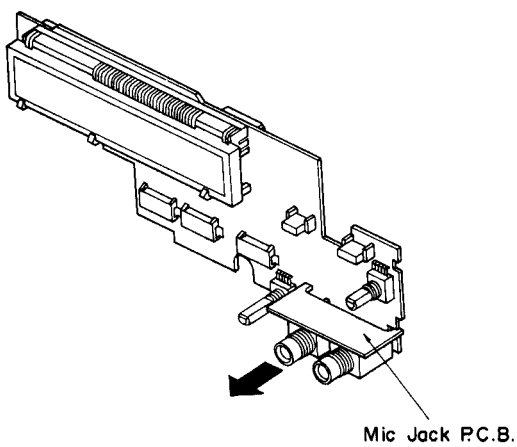



1. Pull out the 2 knobs.



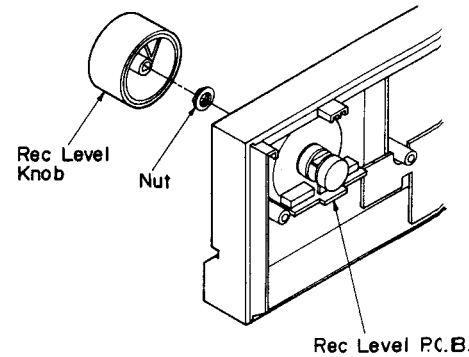

2. Remove the 6 screws (❶~❻).
3. Release the 2 claws.
4. Remove the FL drive P.C.B. in the direction of the arrow.

| Ref. No. 7 | Removal of the mic jack P.C.B. |
|---|---|
| Procedure 1→3→6→7 | |



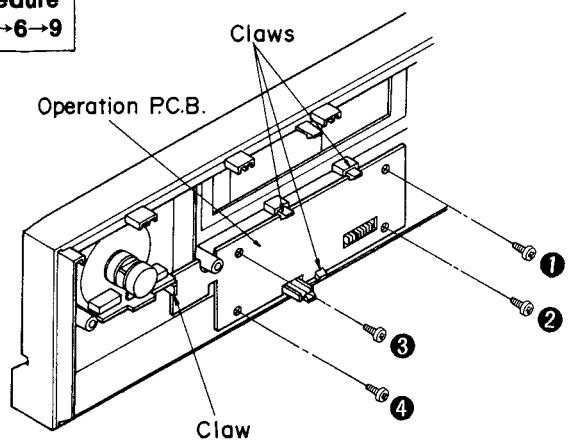

• Remove the mic jack P.C.B. in the direction of the arrow.

| Ref. No. 8 | Removal of the rec level P.C.B. |
|---|---|
| Procedure 1→3→6→8 | |



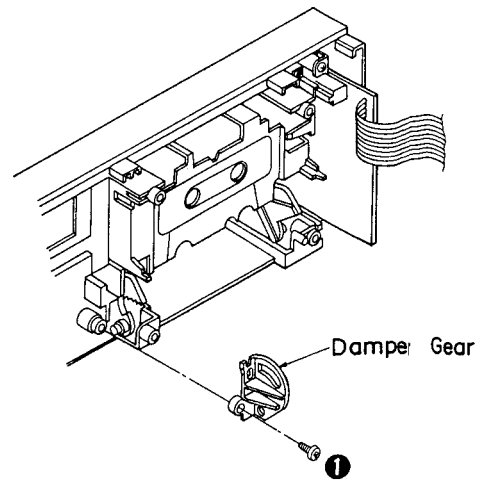

1. Pull out the rec level knob.
2. Remove the 1 nut.

| Ref. No. 9 | Removal of the operation P.C.B. |
|---|---|
| Procedure 1→3→6→9 | |



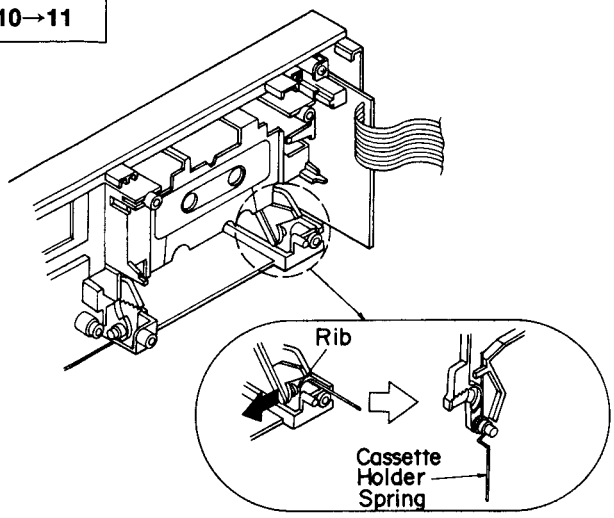

1. Remove the 4 screws (❶~❹).
2. Release the 4 claws.

| Ref. No. 10 | Removal of the damper gear |
|---|---|
| Procedure 1→3→5→10 | |

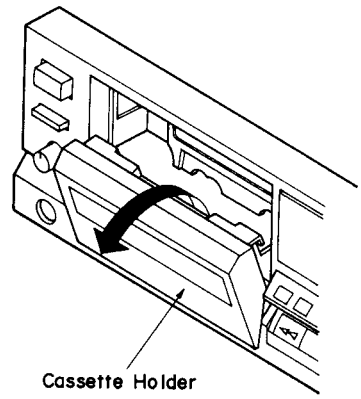



• Remove the 1 screw (❶).

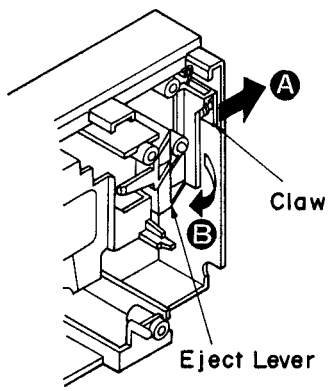
| Ref. No. 11 | Removal of the cassette holder |
|---|---|
| Procedure 10→11 | |



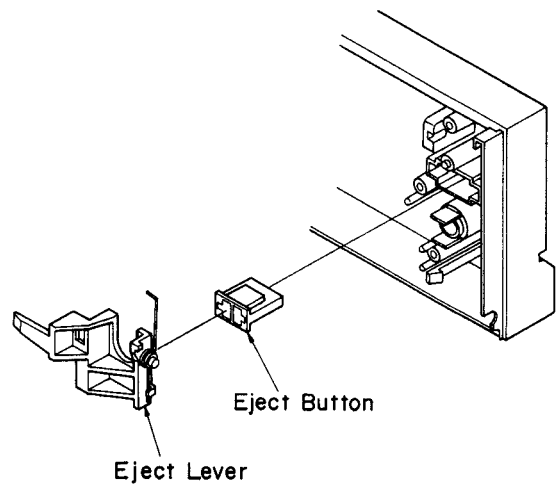

1. Remove the rib in the direction of the arrow.
2. Remove the cassette holder spring.
3. Pull out the cassette holder in the direction of the arrow.




| Ref. No. 12 | Removal of the eject lever and eject button |
|---|---|
| Procedure 1→3→4→5→12 | |




1. Push the claw in the direction of the arrow Ⓐ.
2. Remove the eject lever in the direction of the arrow Ⓑ.




3. Pull out the eject button.

# ■ MEASUREMENT AND ADJUSTMENT METHODES

**Measurement Condition**

- Rec. level control; Maximum
- Timer switch; Off
- MPX filter switch: off
- Bias-adjustment VR: Center
- Dolby NR switch; Off
- Make sure heads are clean
- Make sure capstan and pressure roller are clean
- Judgeable room temperature 20±5°C (68±9°F)

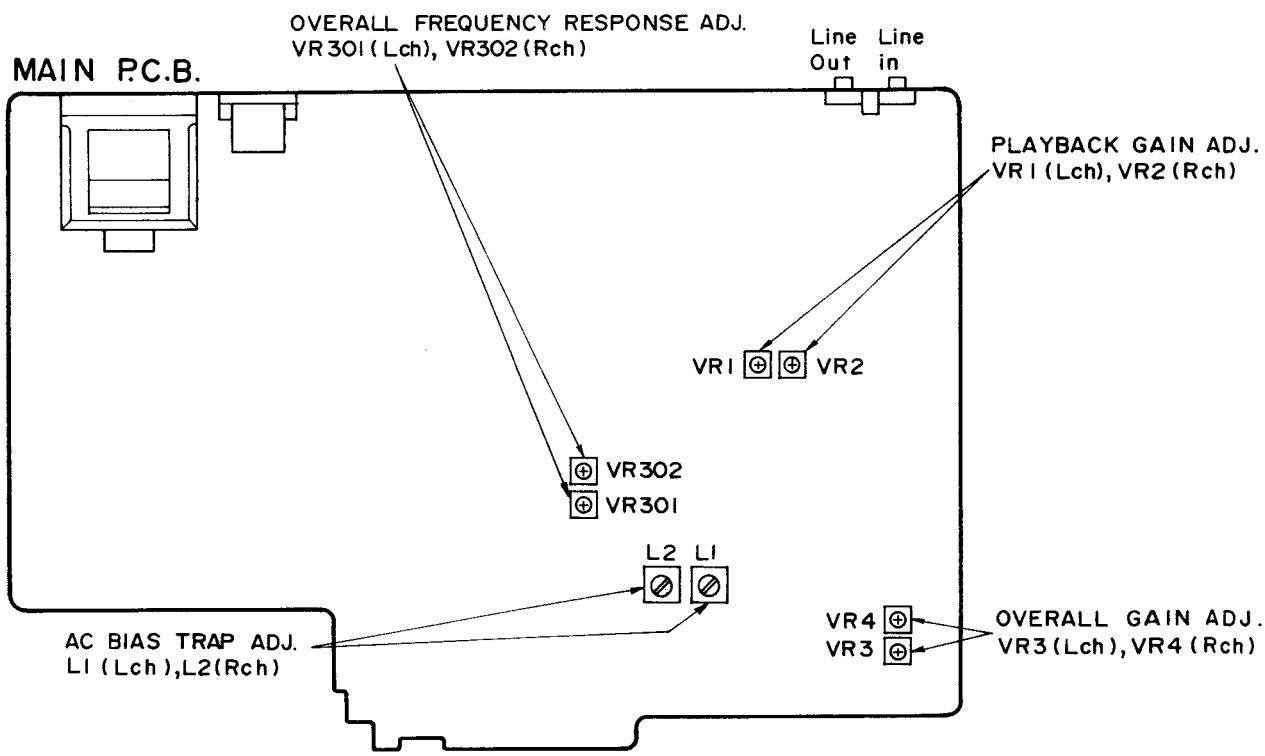
**Measuring instrument**

- EVM (Electronic Voltmeter)
- Oscilloscope
- Digital frequency counter
- AF oscillator
- ATT (Attenuator)
- DC voltmeter
- Resistor (600Ω)

**Test tape**

- Head azimuth adjustment (8kHz, −20dB); QZZCFM
- Tape speed adjustment (3kHz, −10dB); QZZCWAT
- Playback frequency response (315Hz, 12.5kHz, 10kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz, 63Hz, −20dB); QZZCFM
- Playback gain adjustment (315Hz, 0dB); QZZCFM
- Overall frequency response, Overall gain adjustment
  Normal reference blank tape ; QZZCRA
  $CrO_2$ reference blank tape; QZZCRX
  Metal reference blank tape; QZZCRZ

## • Adjustment Points



## HEAD AZIMUTH ADJUSTMENT

1.Playback the azimuth adjusment portion (8 kHz, -20 dB) of the test tape (QZZCFM). Vary the azimuth adjusting screw until the outputs of the L-CH and R-CH are maximized and the lissajous waveform, as illustrated, approaches 0 degrees.

**Note:** If L-CH and R-CH are not maximized at the same point, adjust to the point where the levels of each channel are maximized and equal.

2.Perform the same adjustment in the play mode.

3. **After the adjustment, apply screwlock to the azimuth adjusting screw.**

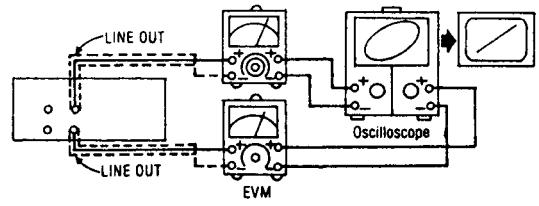



**Fig. 1**

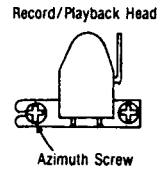



**Fig. 2**

## PLAYBACK GAIN ADJUSTMENT

1.Playback the gain adjusted portion (315 Hz, 0 dB) of the test tape (QZZCFM).

2.Adjust **VR1** (L-CH) and **VR2** (R-CH) so that the output is within the standard value.

| **Standard value: 0.4V±0.5dB** |
|---|

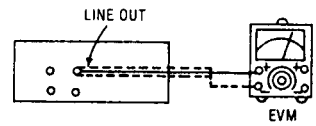



**Fig. 3**

## PLAYBACK FREQUENCY RESPONSE

1. Playback the frequency response portion (315Hz, 12.5kHz~63Hz, −20dB) of the test tape (QZZCFM).
2. Assure that the frequency response is within the range shown in **Fig. 6** for both L-CH and R-CH.

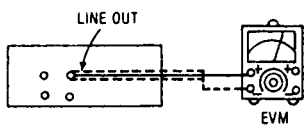



**Fig. 4**

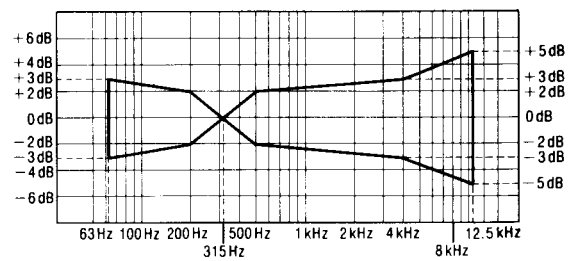
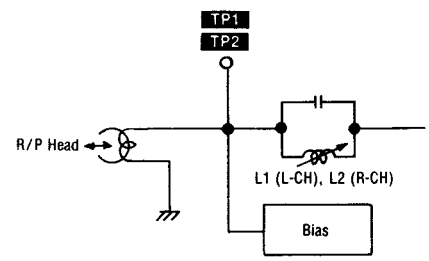



**Fig. 5**

## AC BIAS TRAP ADJUSTMENT

1. Insert the Metal blank test tape (QZZCRZ) and set the unit to the Record mode.
2. Adjust **L1** (L-CH) [[**L2** (R-CH)]] so that the output voltage between **TP1** (**TP2**) and GND is less than the minimum value.



## OVERALL FREQUENCY RESPONSE

1. Insert the normal blank test tape (QZZCRA) and set the unit to the record pause mode.
2. Apply a reference input signal (1kHz, −24dB) through an attenuator.
3. Attenuate the signal by 20dB and adjust the frequency from 50Hz~10kHz.
4. Record the frequency sweep.
5. Playback the recorded signal and assure that it is within the range shown in **Fig. 8** in comparison to the reference frequency (1kHz).
6. If it is not within the standard range, adjust **VR301** (L-CH) and **VR302** (R-CH) so that the frequency level is within the standard range.
   - Level up in high frequency range .....Increase the bias current.
   - Level down in high frequency range ...Decrease the bias current.
7. Repeat steps 2~6 above using the $CrO_2$ tape (QZZCRX) and the metal tape (QZZCRZ) increasing the frequency range to 12.5kHz (50Hz~12.5kHz).
8. Assure that the level is within the range shown in **Fig. 9**.

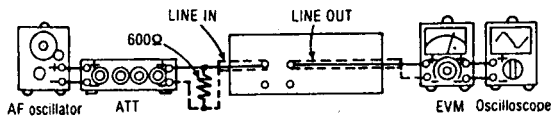



**Fig. 10**

**Normal Overall frequency response chart (NR OUT)**

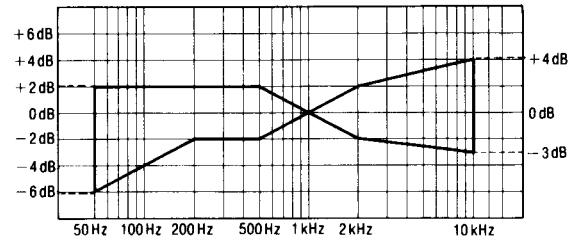



**Fig. 8**

**$CrO_2$ Metal Overall frequency response chart (NR OUT)**

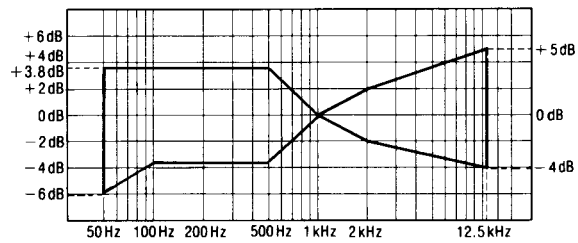



**Fig. 9**

## OVERALL GAIN ADJUSTMENT

1. Insert the normal blank test tape (QZZCRA) and set the unit to the record pause mode.
2. Apply a reference input signal (1kHz, −24dB). Attenuate the output so that its level becomes 0.4V.
3. Record this input signal.
4. Playback the signal recorded in step 3 above, and assure that the output is within the standard value.
5. If it is not within the standard value, adjust **VR3** (L-CH) and **VR4** (R-CH).
6. Repeat the step 2~5 above until the output is within the standard value.

**Standard value: 0.4V±0.5dB**

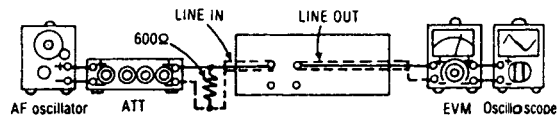



**Fig. 11**

# ■ TERMINAL FUNCTION OF IC'S

## • IC901 (MB88511-224N): MICROCOMPUTER (This microcomputer is used for mechanical operation.)

| Pin No. | Mark | I/O Division | Function |
|---|---|---|---|
| 1 | DMT | O | Line out mute signal ("H"...ON, "L"...OFF) |
| 2 | RMT | O | REC AMP mute signal ("H"...ON, "L"...OFF) |
| 3 | $\overline{BOS}$ | O | BIAS OSC ON/OFF control signal ("H"...OFF, "L"...ON) |
| 4 | $\overline{REC}$ | O | REC LED ON/OFF control signal ("H"...OFF, "L"...ON) |
| 5 | $\overline{PLAY}$ | O | PLAY LED ON/OFF control signal ("H"...OFF, "L"...ON) |
| 6 | EJECT F | O | Power eject motor open control signal ("H"...OPEN, "L"...CLOSE/STOP) |
| 7 | EJECT R | O | Power eject motor close control singnal ("H"...CLOSE, "L"...OPEN/STOP) |
| 8 | $\overline{CAPM}$ | O | Capstan motor ON/OFF control signal ("H"...OFF (POWER OFF or ABNORMAL CONDITION), "L"...ON) |
| 9 | $\overline{SOL1}$ | O | Trigger solenoid ON/OFF control signal ("H"...OFF, "L"...ON) |
| 10 | $\overline{SOL2}$ | O | Brake solenoid ON/OFF control signal ("H"...OFF, "L"...ON) |
| 11 | $\overline{SOL2C}$ | O | Brake solenoid hold ON/OFF control signal ("H"...OFF, "L"...ON (FF/REW/MS) |
| 12 | RP (REEL PULSE) | I | Reel pulse signal |
| 13 | RMR | O | Reel motor reverse control signal ("H"...REW, "L"...STOP/PLAY/FF) |
| 14 | RMF | O | Reel motor foward control signal ("H"...FF/PLAY, "L"...STOP/REW) |
| 15 | $\overline{OSC}$ | I | Single capstan/Dual capstan select signal ("H"...DUAL CAPSTAN, "L"...SINGLE CAPSTAN) |
| | | O | Calibration OSC circuit ON/OFF control signal ("H"...OFF, "L"...ON) |
| 16 | Ex | I | Clock OSC terminal (6 MHz) |
| 17 | X | O | |
| 18 | $\overline{RES}$ | I | Reset signal ("L"...RESET) |
| 19 | OSCF | O | Calibration OSC circuit (400 Hz/10 kHz) select signal ("H"...HIGH FREQ. (10 kHz), "L"...LOW FREQ. (400 Hz) |
| 20 | $\overline{POF}$ | I | AC POWER detect signal |
| 21 | Vss | — | GND |

| Pin No. | Mark | I/O Division | Function |
|---|---|---|---|
| 22 | $\overline{DIRECT}$ | I | CD direct operation det. signal |
| | | O | CD direct/LINE input select control signal ("H"...CD DIRECT, "L"...LINE INPUT) |
| 23 | $\overline{C}$ | O | Dolby NR mode select signal |
| 24 | $\overline{B}$ | | |

| | NR OFF | Dolby B | Dolby C | dbx |
|---|---|---|---|---|
| $\overline{C}$ | H | H | L | L |
| $\overline{B}$ | H | L | H | L |

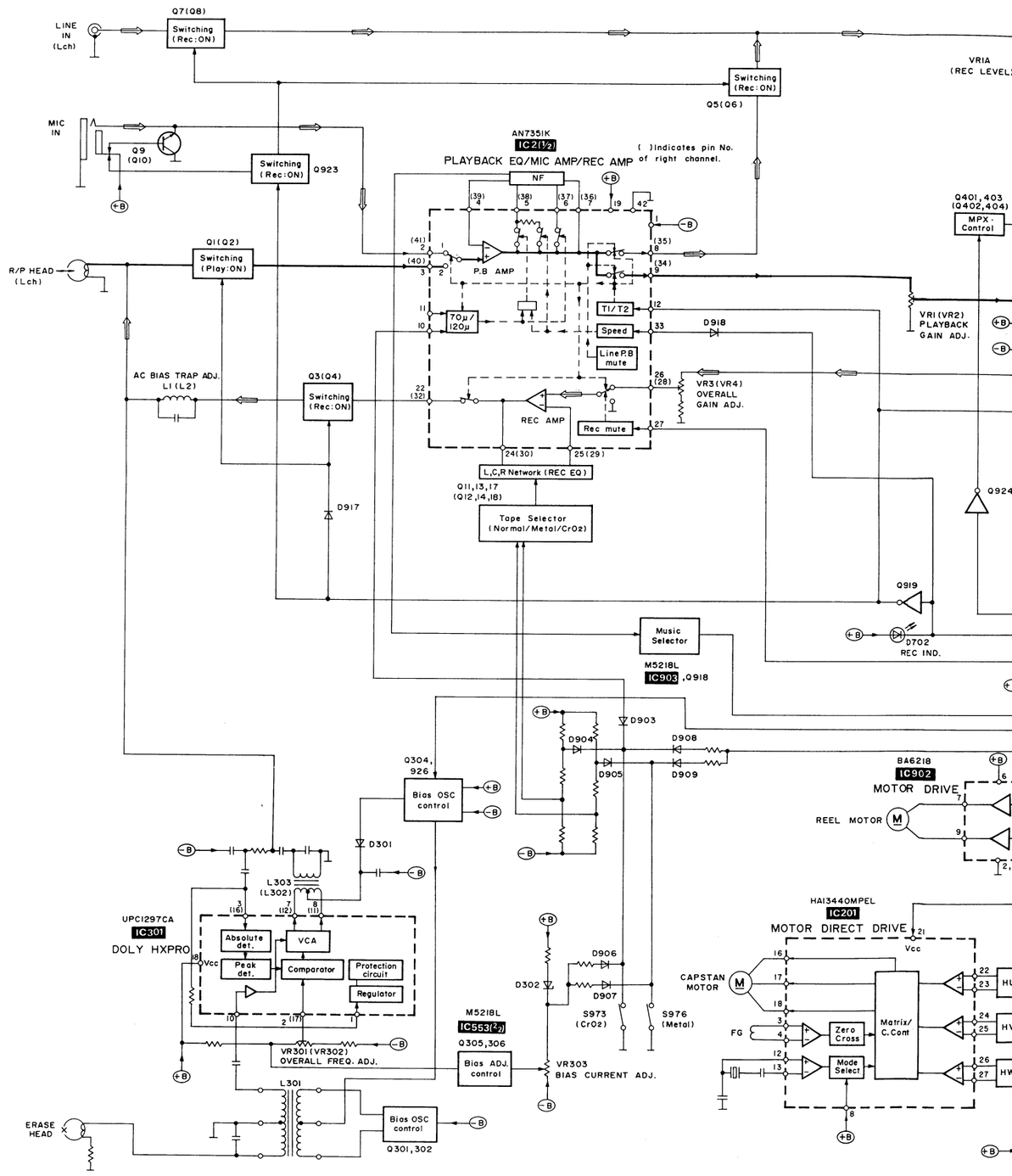
| | | | |
|---|---|---|---|
| 25 | MPX | O | MPX coil ON/OFF control signal ("H"...MPX OFF, "L"...MPX ON) |
| 26 | T/$\overline{S}$ | I | Two head/Three head select signal ("H"...THREE HEAD, "L"...TWO HEAD) |
| | | O | Tape/Source monitor select control ("H"...TAPE MONITOR, "L"...SOURCE MONITOR) |
| 27 | $\overline{HALF}$ | I | Cassette half det. SW terminal ("L"...ON) |
| 28 | $\overline{MODE}$ | I | Mechanism mode SW terminal |
| 29 | $\overline{ARM}$ | I | Auto Rec Mute key signal ("L"...PUSH) |
| 30 | AVss | — | Connected to GND |
| 31 | AV$\overline{R}$ | — | Connected to GND |
| 32 | AVcc | — | Power supply terminal |
| 33 | KEY 1 | I | Key SW input (STOP/FF REW/PLAY/REC/PAUSE/ dbx/C/B/MPX/TIMER REC/TIMER PLAY) |
| 34 | KEY 2 | I | Key SW input (MEMORY REPEAT/MEMORY STOP/EJECT/MONITOR/CD DIRECT/ OSC/TEST/REMOTE A/B) |
| 35 | ATS | I | Auto Tape Select SW input (ATSC/ATSM/EJECT OPEN LEAF SW) |
| 36 | INH | I | REC INH SW input (REC INH/EJECT MOTOR LEAF SW) |
| 37 | B555 | I | Connected to GND |
| 38 | DISP | O | Serial data signal of FL display (ACTIVE: "H") |
| 39 | MSP | I | Music select det. signal ("H"...NO SIGNAL, "L"...ON SIGNAL) |
| 40 | $\overline{MEMORY\ PULSE}$ | I | Memory Pulse signal |
| 41 | $\overline{REMOCON}$ | I | Remote control serial data ("L" for 50 ms. with counter "0000") |
| 42 | Vcc | — | Power supply terminal |

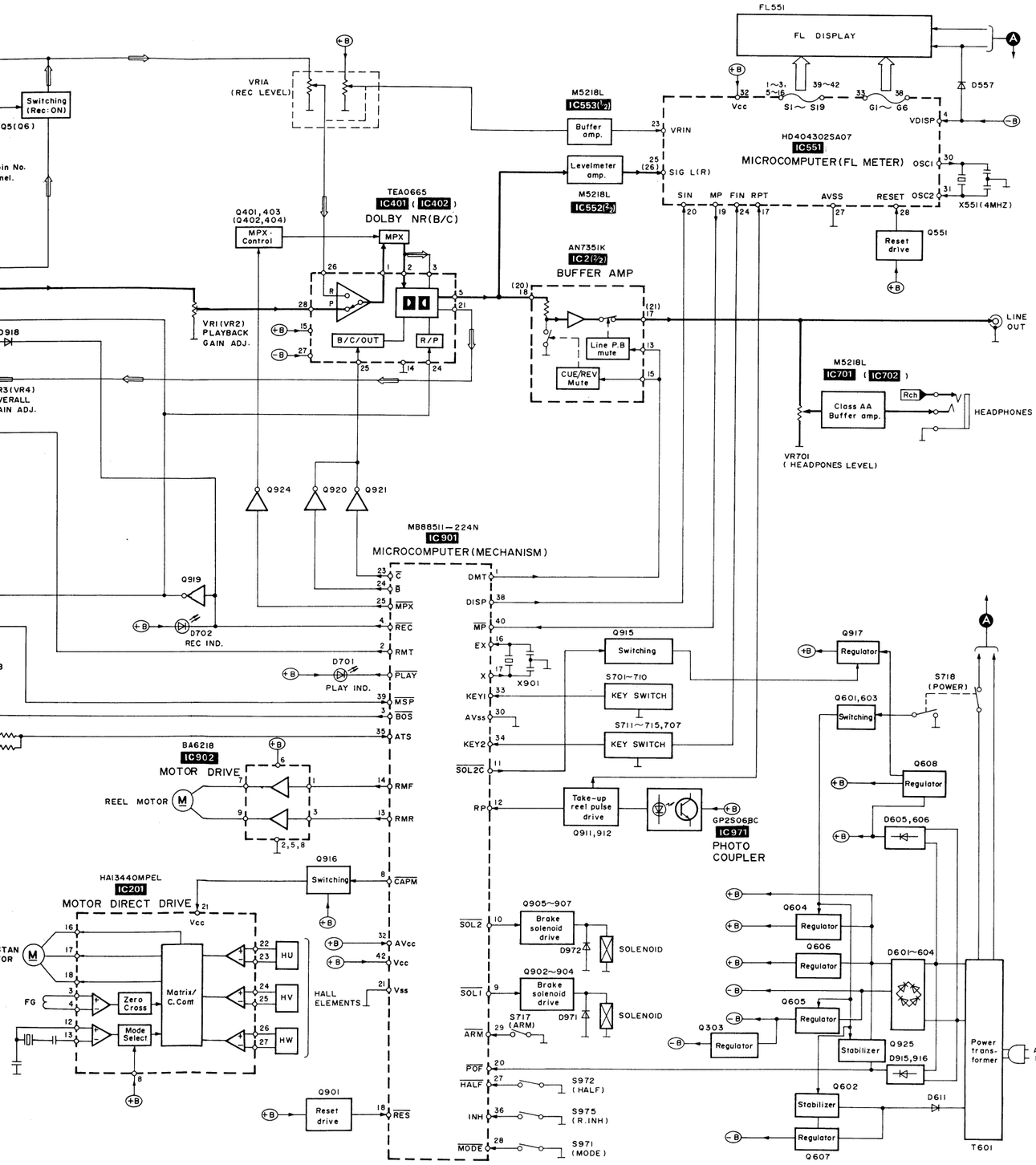
## • IC551 (HD404302SA07): MICROCOMPUTER (This microcomputer is used for FL meter operation.)

| Pin No. | Mark | I/O Division | Function |
|---|---|---|---|
| 1 | S5 | O | Segment signal for FL display |
| 2 | S6 | O | |
| 3 | S7 | O | |
| 4 | Vdisp | — | Pull down power supply terminal (−Vcc) |
| 5 | S8 | O | Segment signal for FL display |
| 6 | S9 | O | |
| 7 | S10 | O | |
| 8 | S11 | O | |
| 9 | S12 | O | |
| 10 | S13 | O | |
| 11 | S14 | O | |
| 12 | S15 | O | |
| 13 | S16 | O | |
| 14 | S17 | O | |
| 15 | S18 | O | |
| 16 | S19 | O | |
| 17 | RPT | I | Reel pulse signal of tape up reel |
| 18 | RPS | I | Reel pulse signal of supply reel |
| 19 | MP | O | Memory pulse signal ("L" for 50 ms. with counter "0000") |
| 20 | DISP | I | Serial data signal (ACTIVE: "H") |
| 21 | GND | — | GND terminal |
| 22 | AVcc | — | Power supply terminal |
| 23 | VR IN | I | Rec level control (VR MAX...+5V) |
| 24 | F IN | I | Function key terminal (COUNTER RESET/COUNTER MODE/APRS) |
| 25 | SIG L | I | LCH level signal |
| 26 | SIG R | I | RCH level signal |
| 27 | AVss | — | Connected to GND |
| 28 | RESET | I | Reset terminal (with Reset: "H") |
| 29 | $\overline{TEST}$ | I | Test terminal |
| 30 | OSC 1 | O | Clock OSC terminal (4 MHz) |
| 31 | OSC 2 | I | |
| 32 | Vcc | I | Power supply terminal |
| 33 | G1 | O | Grid signal for FL display |
| 34 | G2 | O | |
| 35 | G3 | O | |
| 36 | G4 | O | |
| 37 | G5 | O | |
| 38 | G6 | O | |
| 39 | S1 | O | Segment signal for FL display |
| 40 | S2 | O | |
| 41 | S3 | O | |
| 42 | S4 | O | |



## ■ BLOCK DIAGRAM





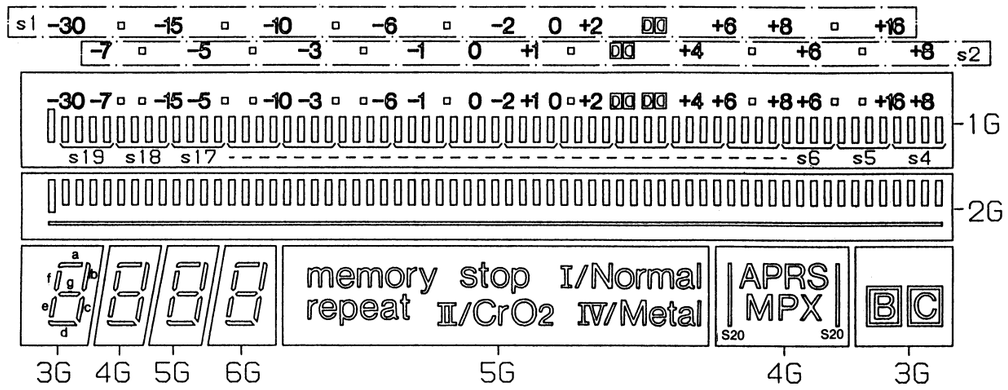

**Notes**

- ⟶ Playback signal
- ⇨ Recording signal



## ■ INTERNAL CONNECTION OF FL

### • Grid connection diagram




### • Anode connection table

| | 1G | 2G | 3G | 4G | 5G | 6G |
|---|---|---|---|---|---|---|
| S1 | S1 | - | - | APRS | - | - |
| S2 | S2 | - | - | - | - | - |
| S3 | - | - | - | - | - | - |
| S4 | ▮▮▮▮ | ▮▮▮▮ | - | - | - | - |
| S5 | ▮▮▮▮ | ▮▮▮▮ | - | - | - | - |
| S6 | ▮▮▮▮ | ▮▮▮▮ | - | - | memory | - |
| S7 | ▮▮▮▮ | ▮▮▮▮ | - | - | repeat | - |
| S8 | ▮▮▮▮ | ▮▮▮▮ | - | - | stop | - |
| S9 | ▮▮▮▮ | ▮▮▮▮ | B | - | - | - |
| S10 | ▮▮▮▮ | ▮▮▮▮ | C | - | I /Normal | - |
| S11 | ▮▮▮▮ | ▮▮▮▮ | - | MPX | II /$CrO_2$ | - |
| S12 | ▮▮▮▮ | ▮▮▮▮ | - | - | IV/Metal | - |
| S13 | ▮▮▮▮ | ▮▮▮▮ | a | a | a | a |
| S14 | ▮▮▮▮ | ▮▮▮▮ | b | b | b | b |
| S15 | ▮▮▮▮ | ▮▮▮▮ | f | f | f | f |
| S16 | ▮▮▮▮ | ▮▮▮▮ | g | g | g | g |
| S17 | ▮▮▮▮ | ▮▮▮▮ | c | c | c | c |
| S18 | ▮▮▮▮ | ▮▮▮▮ | e | e | e | e |
| S19 | ▮▮▮▮ | ▮▮▮▮ | d | d | d | d |
| S20 (dB) | ▮ | ▮▬▬ | - | ▮ ▮ | - | - |

### • Pin connection

| PIN NO. | 35 | 34 | 33 | 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CONNECTION | F2 | F2 | NP | NP | S19 | S18 | S17 | S16 | S15 | S14 | S13 | S12 | S11 | S10 | S9 | S8 | S7 | S6 | S5 | S4 | NC | S2 | S1 | NC | 6G | 5G | 4G | 3G | 2G | 1G | S20 | NP | NP | F1 | F1 |

# ■ SCHEMATIC DIAGRAM

**(Parts list on pages 34, 35, 42～44.)**

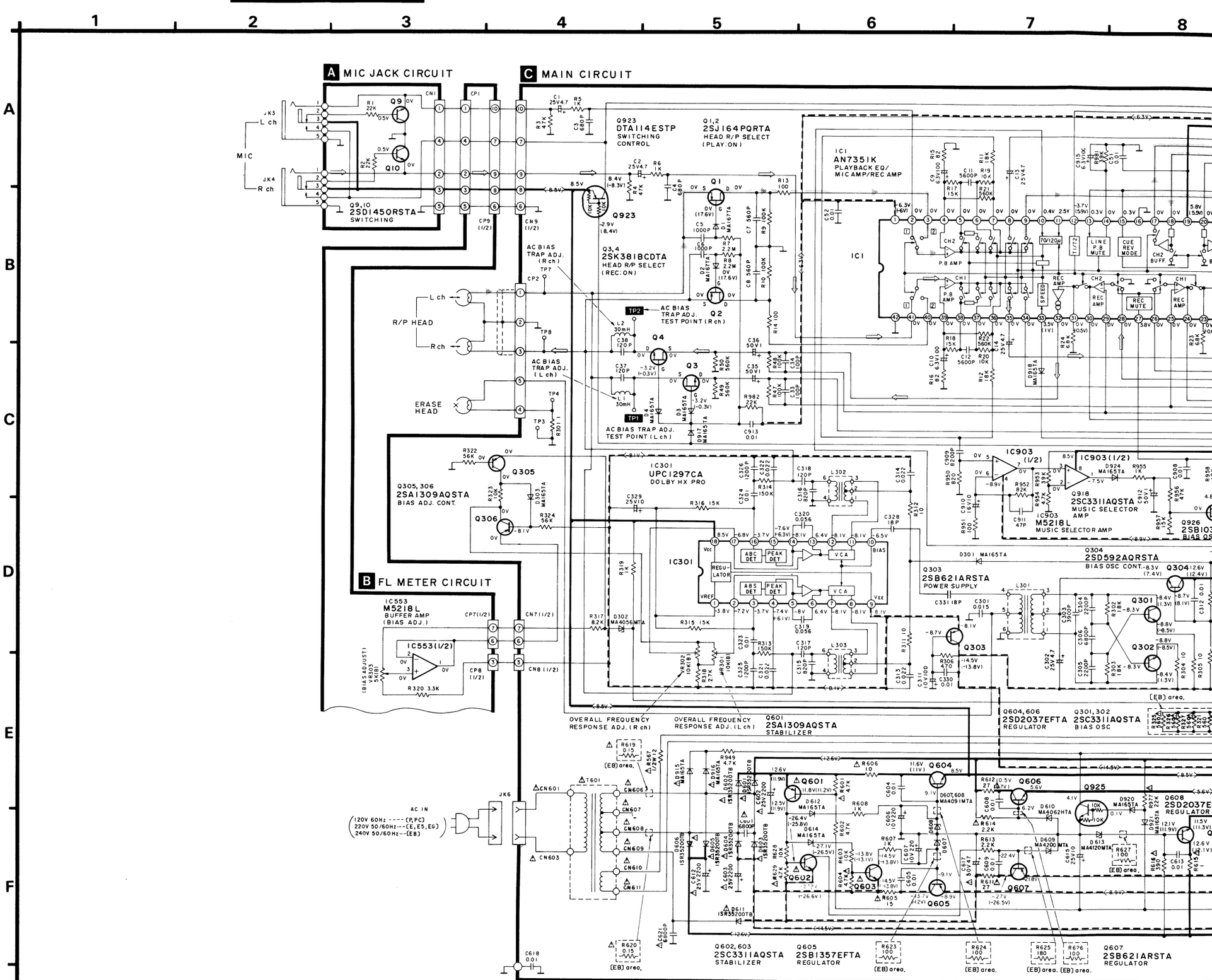
(This schematic diagram may be modified at any time with development of new technology.)

**Notes:**

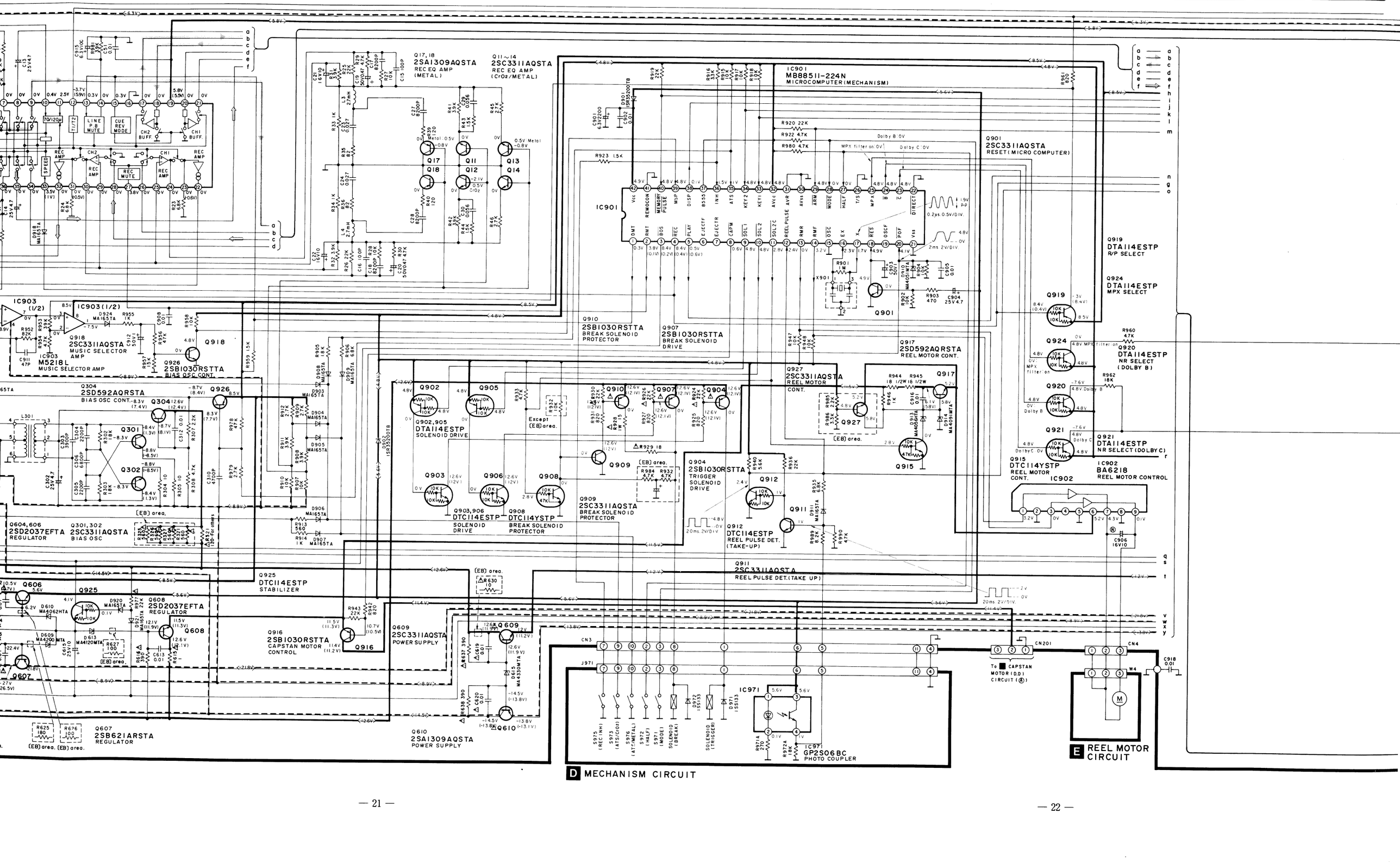
- S701 : Stop switch (stop) in "**off**" position.
- S702 : F.F. switch (ff) in "**off**" position.
- S703 : Rew switch (rew) in "**off**" position.
- S704 : Playback switch (Play) in "**off**" position.
- S705 : Record switch (rec) in "**off**" position.
- S706 : Pause switch (pause) in "**off**" position.
- S707 : Dolby noise-reduction switch (Dolby NRC) in "**off**" position.
- S708 : Dolby noise-reduction switch (Dolby NR B) in "**off**" position.
- S709 : Multiplex filter switch (MPX filter) in "**off**" position.
- S710 : Timer switch (timer) in "**off**" position.
- S711 : Counter reset switch (counter reset) in "**off**" position.
- S713 : Meter range switch (meter range) in "**off**" position.
- S714 : Memory mode switch (memory repeat) in "**off**" position.
- S715 : Memory mode switch (memory stop) in "**off**" position.
- S716 : APRS switch (APRS) in "**off**" position.
- S717 : Automatic-record-muting switch (auto rec mute) in "**off**" position.
- S718 : Power switch (standby ⏻ /on) in "**on**" position.
- S971 : Mode switch in "**off**" position.
- S972 : Cassette half detection switch in "**off**" position.
- S973 : ATS ($CrO_2$) switch in "**off**" position.
- S975 : Rec Inhibit switch in "**off**" position.
- S976 : ATS (Metal) switch in "**off**" position.
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.
  1K=1,000 (Ω), 1M=1,000k (Ω)
- Capacity are in micro-farads (μF) unless specified otherwise.
- All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position otherwise specified.
  ( ) .....Voltage values at record mode.
  For measurement us EVM.
- Important safety notice
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- ( ▬▬< +B >▬▬ ) indicates +B (bias).
- ( ▪▪▪< −B >▪▪▪ ) indicates −B (bias).
- ( ▨▨▨ ) indicates the flow of the playback signal.
- ( ⟹ ) indicates the flow of the record signal.

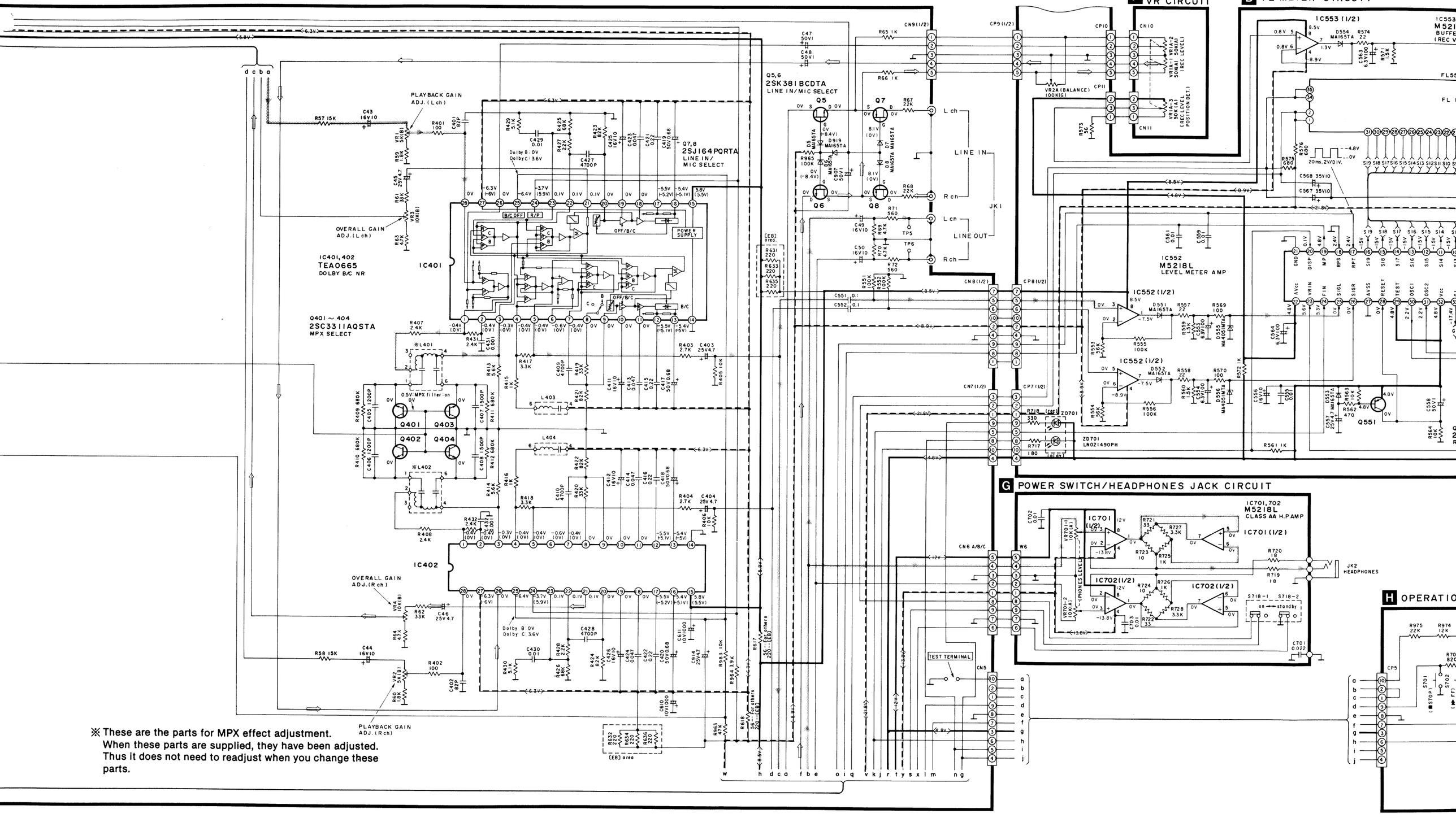
**＊Caution!**

IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.
＊ Cover the parts boxes made of plastics with aluminum foil.
＊ Ground the soldering iron.
＊ Put a conductive mat on the work table.
＊ Do not touch the legs of IC or LSI with the fingers directly.

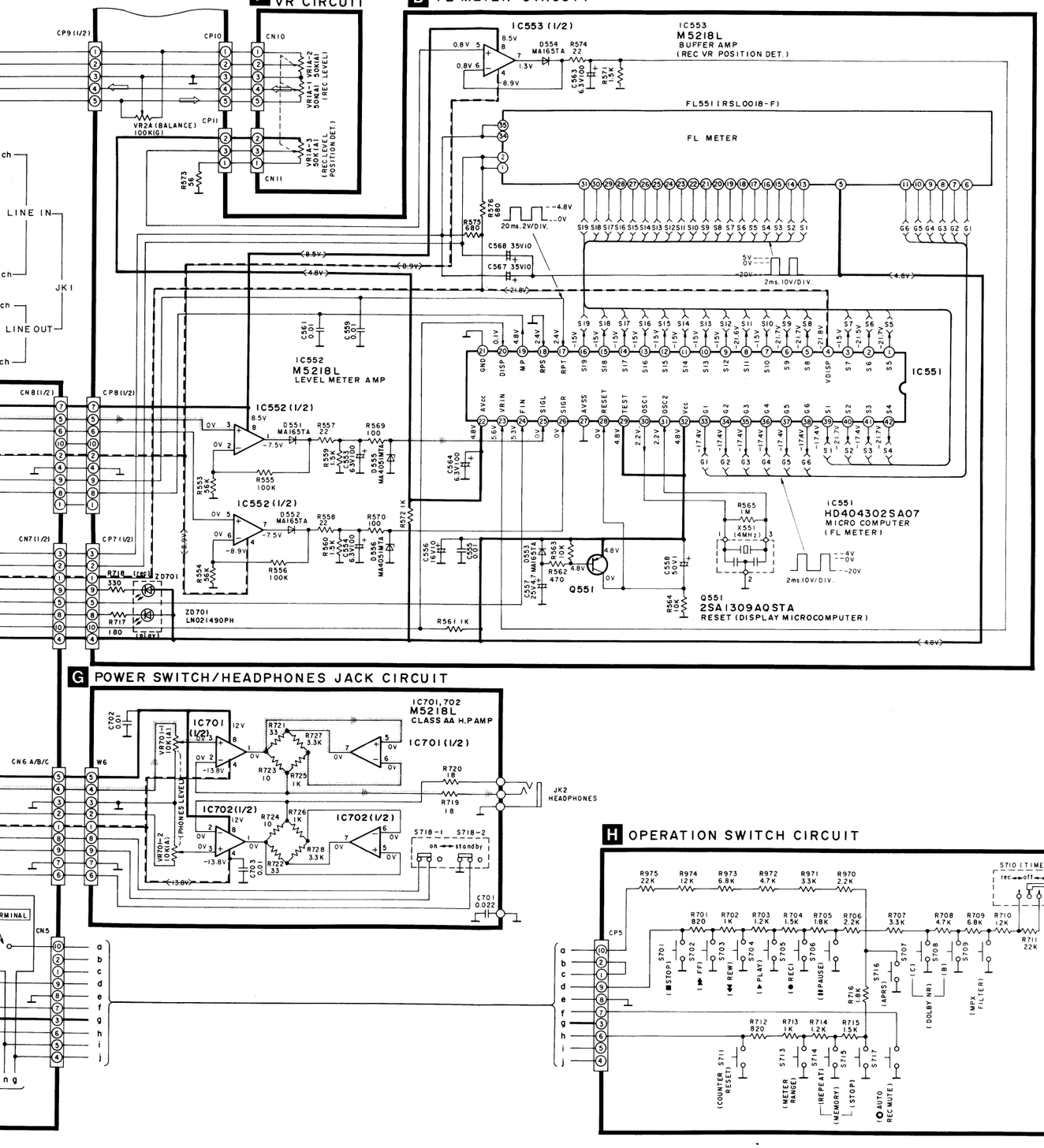


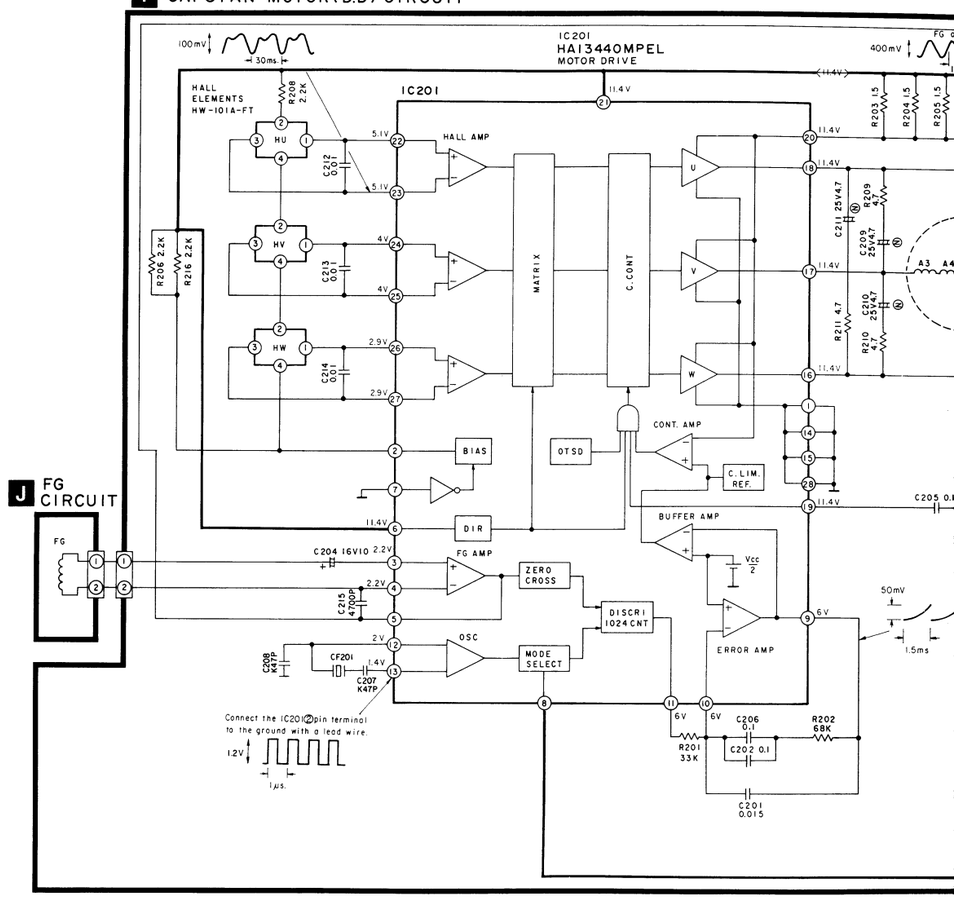
7 8 9 10 11 12 13 14 15 16 17






※ These are the parts for MPX effect adjustment.
When these parts are supplied, they have been adjusted.
Thus it does not need to readjust when you change these parts.



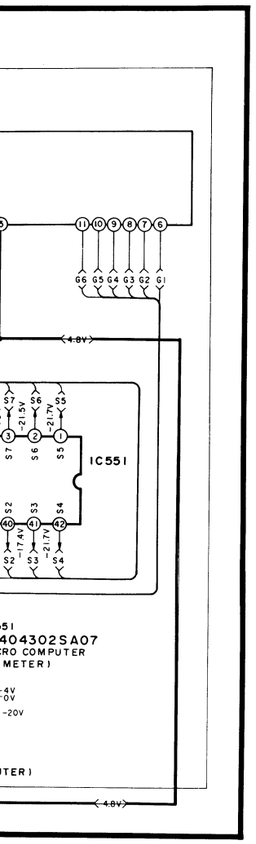




# ■ TROUBLESHOOTING OF DIRECT DRIV

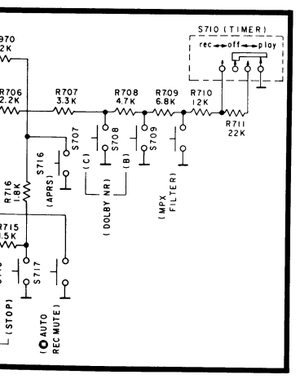
| Problem | Possible Cause |
|---|---|
| 1. The motor does not rotate. | 1. No power supply (+12V)<br>2. The Hall element has failed (Current d not flow).<br>3. The ceramic (or crystal) does not osci |
| 2. The motor does not rotate properly. (When pressed, it stops at certain angles. Sometimes it does not rotate even if power is ON.) | 1. The coil is broken or not properly sold<br>2. Output of the Hall element is not prop |
| 3. The motor is out of control. | 1. The FG coil is broken. |
| 4. Abnormal wow | 1. Same as those described for problem |

**Note:** Check the points marked with an asterisk (*) by removing the DD pin ② to GND with a lead wire. (After the DD motor control P.C.B. the coil, heating the IC.)

29 30 31 32 33 34 35

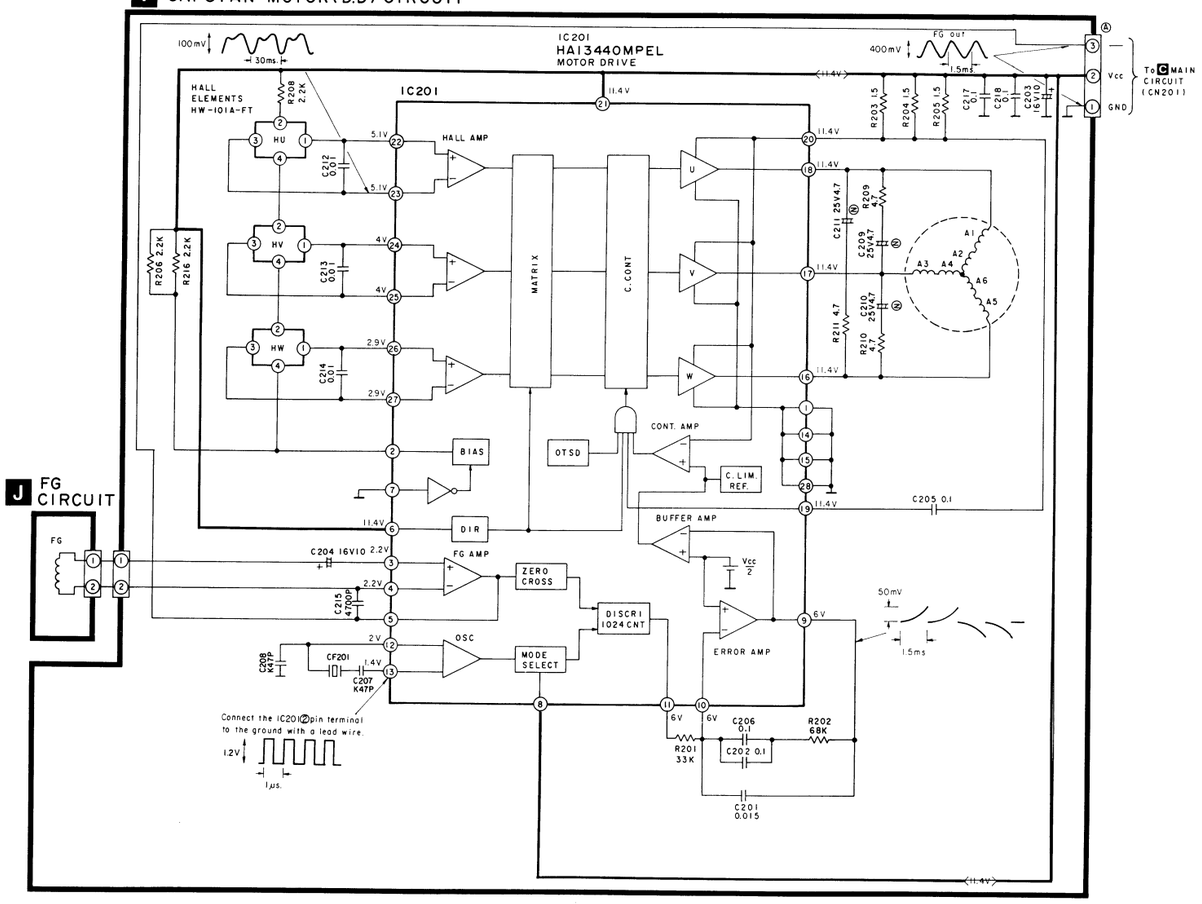



IT






## I CAPSTAN MOTOR(D.D) CIRCUIT



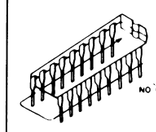

## TROUBLESHOOTING OF DIRECT DRIVE MOTOR

| Problem | Possible Cause | Check Points |
|---|---|---|
| 1. The motor does not rotate. | 1. No power supply (+12V)<br>2. The Hall element has failed (Current does not flow).<br>3. The ceramic (or crystal) does not oscillate. | • Check the voltage applied to the connector.<br>• Check the DC potential on IC pins ㉒~㉗.<br>*Check the waveform of IC pin ⑬. |
| 2. The motor does not rotate properly. (When pressed, it stops at certain angles. Sometimes it does not rotate even if power is ON.) | 1. The coil is broken or not properly soldered.<br>2. Output of the Hall element is not proper. | *Check the conductance of the coil. If normal, the resistances between IC pins ⑯~⑰, ⑰~⑱, ⑯~⑱ will reach 20 ohms.<br>• Check the waveform of IC pins ㉒~㉗. |
| 3. The motor is out of control. | 1. The FG coil is broken. | • Check the waveform of IC pin ⑤.<br>• Check if the FG coil is broken. |
| 4. Abnormal wow | 1. Same as those described for problem 2. | |

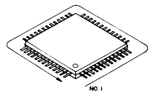
**Note:** Check the points marked with an asterisk (*) by removing the DD motor control P.C.B. and then connecting IC pin ② to GND with a lead wire. (After the DD motor control P.C.B. is removed, current will start flowing through the coil, heating the IC.)



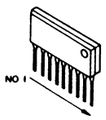
## TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES



| | |
|---|---|
| UPC1297CA | 18 Pin |
| TEA0665 | 28 Pin |
| AN7351K | 42 Pin |
| HD404302SA07 | 42 Pin |
| MB88511-224N | 42 Pin |

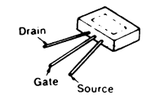


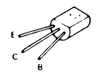
| | |
|---|---|
| HA13440MPEL | 30 Pin |



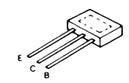
| | |
|---|---|
| M5218L | 8 Pin |
| BA6218 | 9 Pin |

2SJ164PQRTA



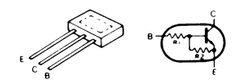



2SB621ARSTA
2SD592A

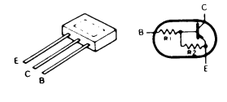


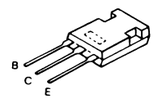
2SA1309AQSTA
2SC3311AQSTA
2SD1450RSTTA
2SB1030RSTTA

DTC114YSTP
DTC114ESTP

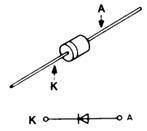


DTA114ESTP

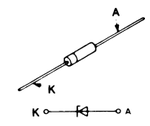




2SB1357DEFTA
2SD2037EFTA

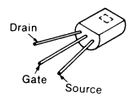


MA167TA
MA165TA
1SR35200TB
1SS133



MA4200M
MA4047MTA
MA4091MTA
MA4062HTA
MA4120M
MA4330MTA
MA4056H
MA4051MTA
MA4056MTA

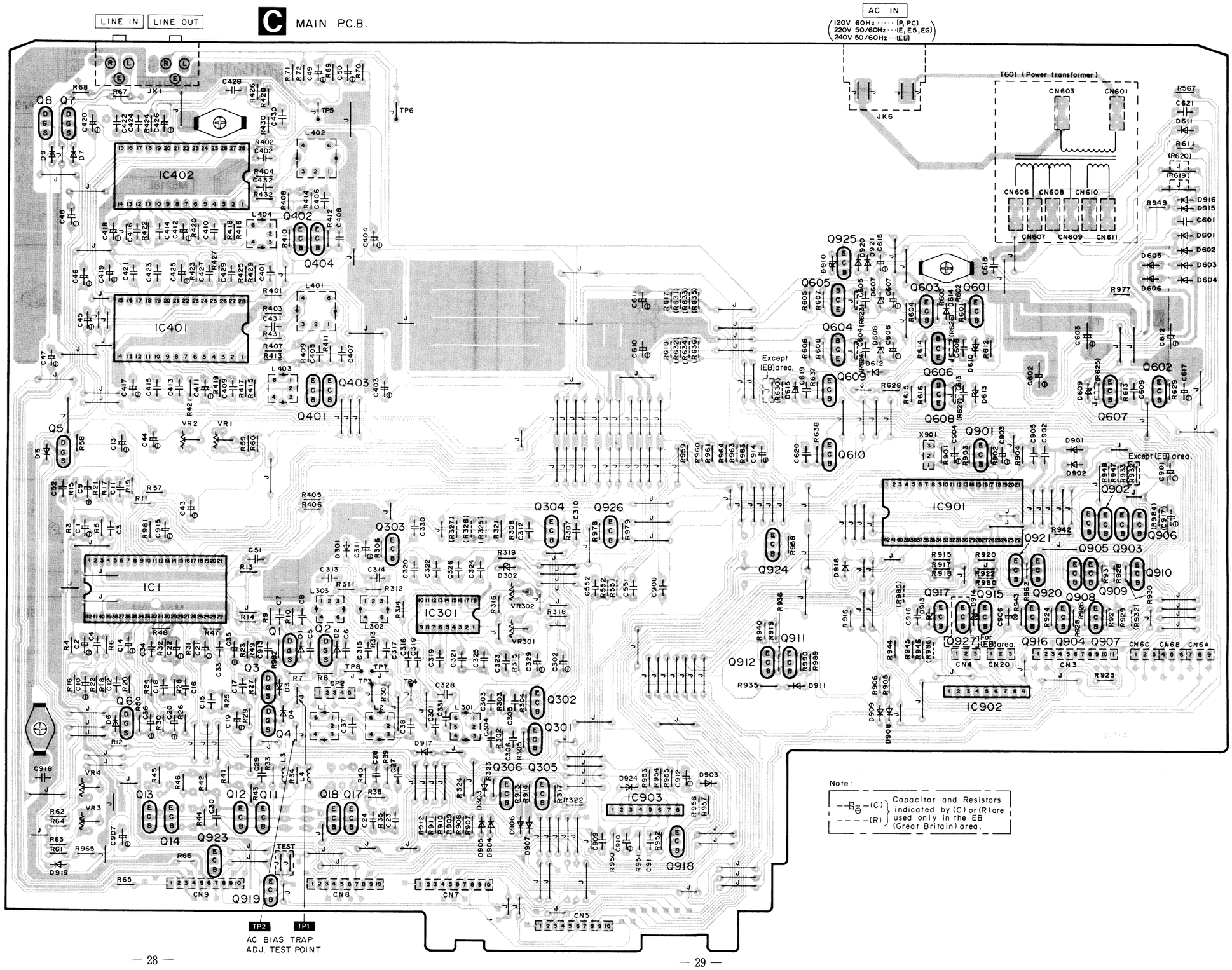
2SK381BCDTA



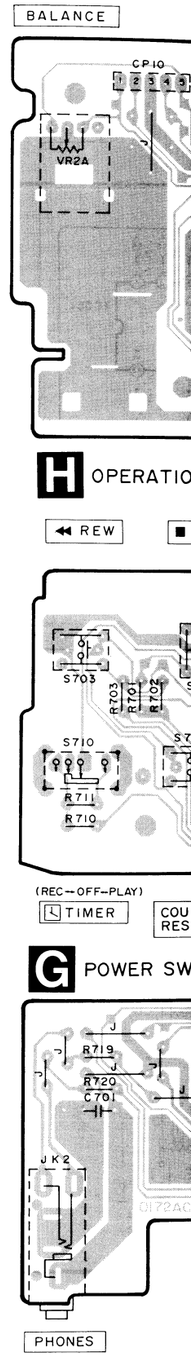
RS-B555 RS-B555

## ■ PRINTED CIRCUIT BOARDS

**C** MAIN P.C.B.



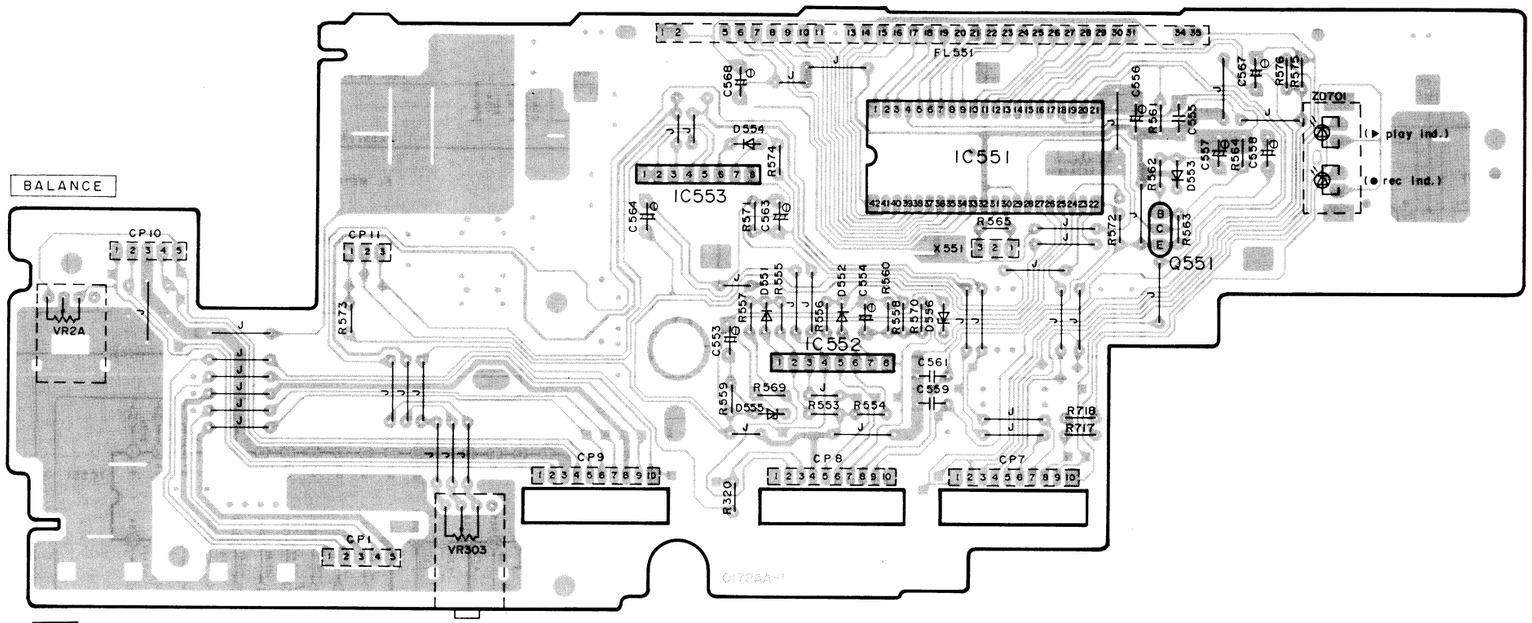

**H** OPERATIO



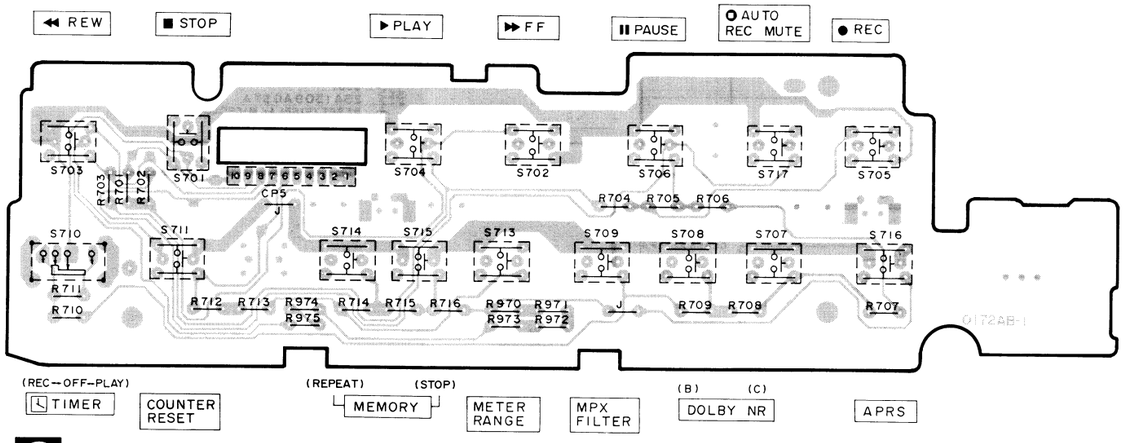

**G** POWER SW

8 9 10 11 12 13 14 15 16 17

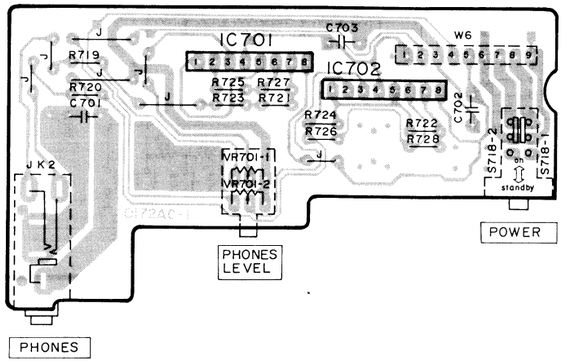
## B FL METER P.C.B.



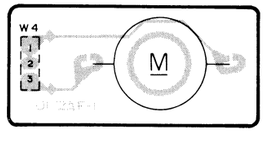

## H OPERATION SWITCH P.C.B.



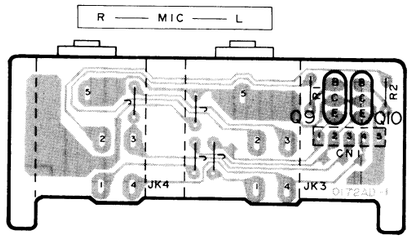

## G POWER SWITCH/HEADPHONES JACK P.C.B.



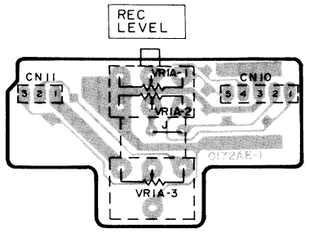

## E REEL MOTOR P.C.B.




## A MIC JACK P.C.B.

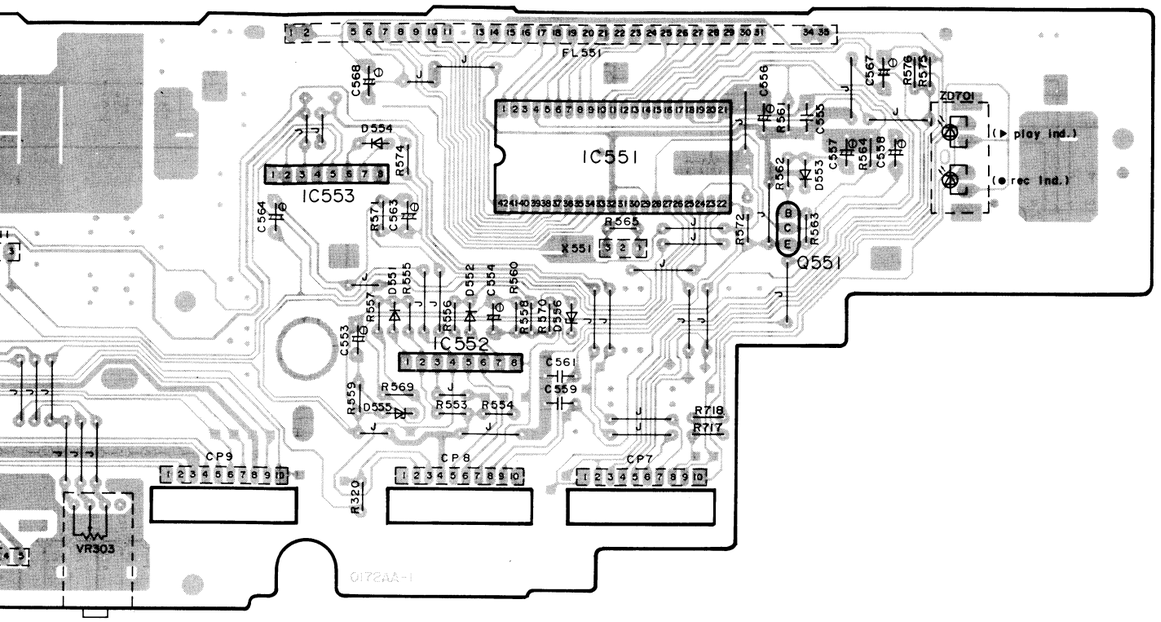


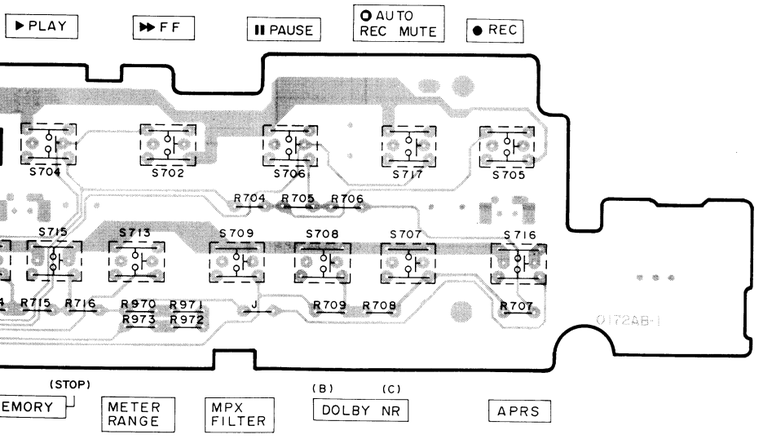

## F REC LEVEL VR P.C.B.



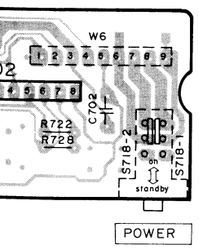
12 13 14 15 16 17 18 19 20 21

FL METER P.C.B.

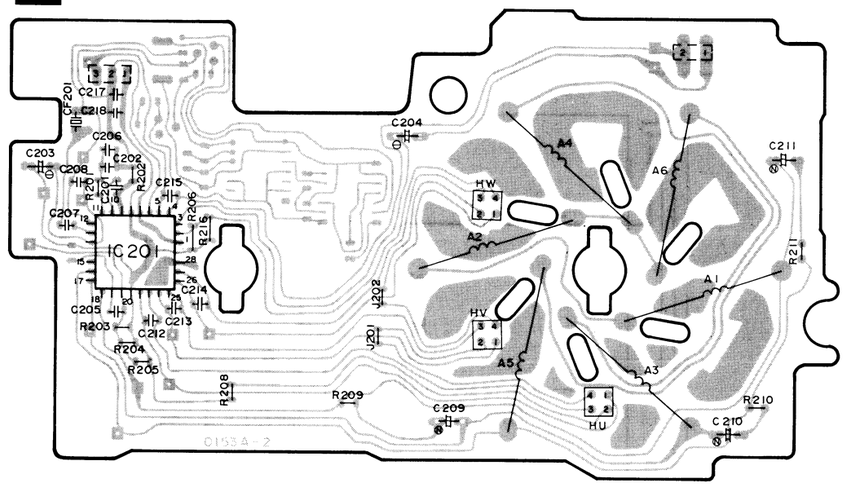


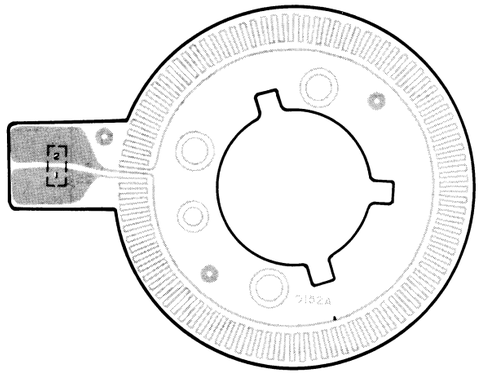

S JACK P.C.B.



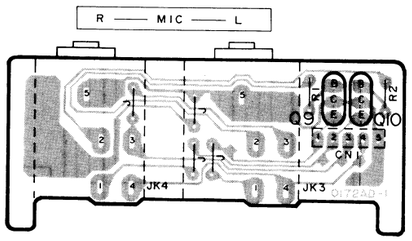

**I** CAPSTAN MOTOR (D.D) P.C.B.



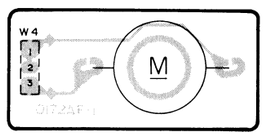

**J** FG P.C.B.



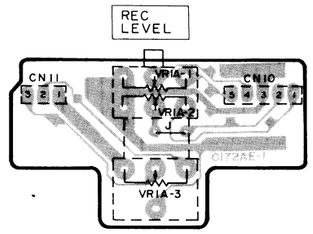
**A** MIC JACK P.C.B.



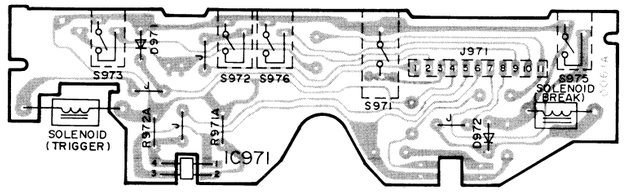

**E** REEL MOTOR P.C.B.



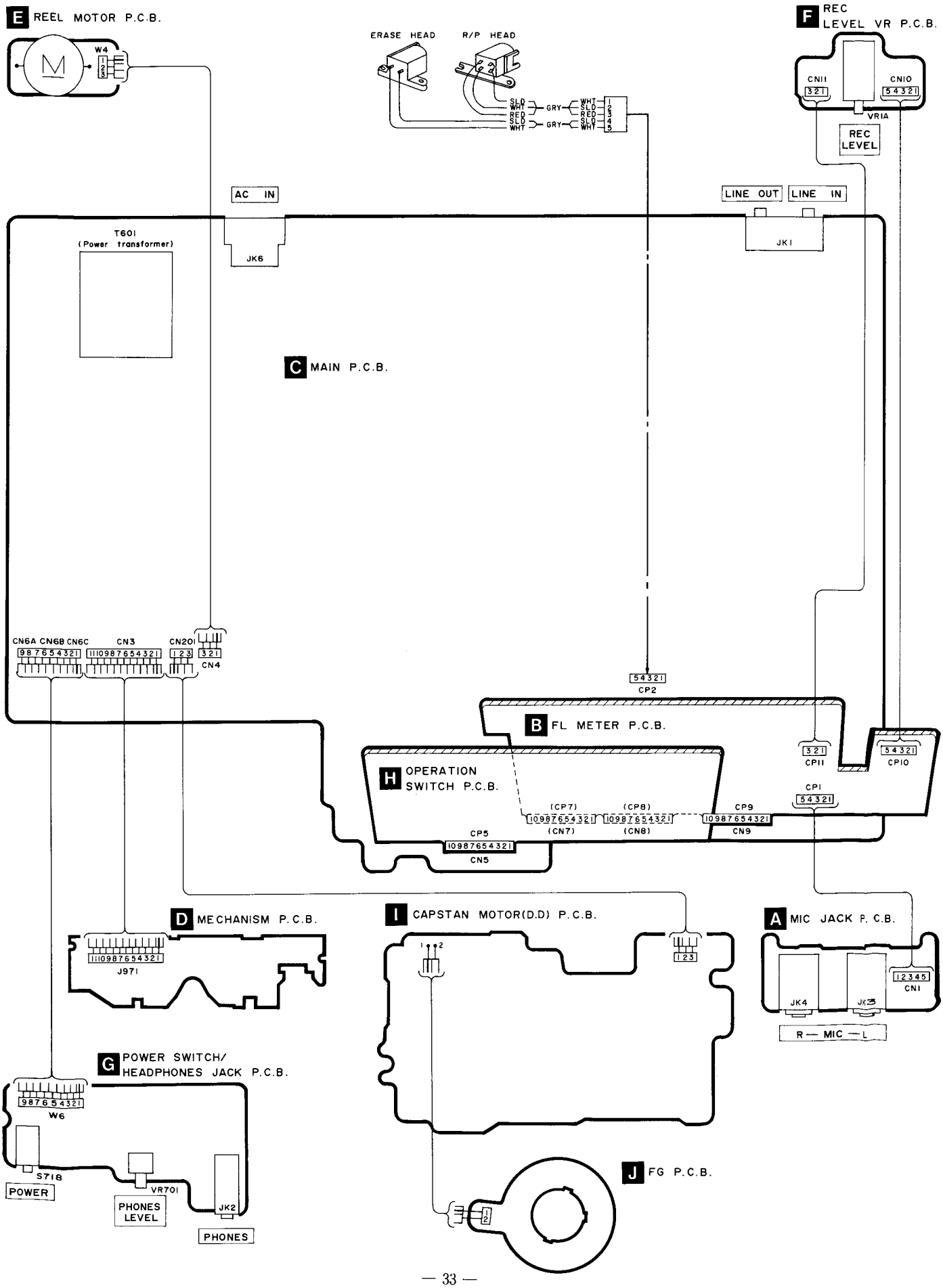

**F** REC LEVEL VR P.C.B.




**D** MECHANISM P.C.B.



# ■ WIRING CONNECTION DIAGRAM



# ■ REPLACEMENT PARTS LIST

Notes : * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| | | | |
| | | INTEGRATED CIRCUIT(S) | |
| | | | |
| IC1 | AN7351K | IC, PLAYBACK EQ. /MIC AMP | |
| IC201 | HA13440MPEL | IC, MOTOR DRIVE | |
| IC301 | UPC1297CA | IC, DOLBY HX PRO | |
| IC401, 402 | TEA0665 | IC, DOLBY B/C NR | |
| IC551 | HD404302SA07 | IC, MICROCOMPUTER;FL METER | |
| IC552 | M5218L | IC, LEVEL METER AMP | |
| IC553 | M5218L | IC, BUFFER AMP | |
| IC701, 702 | M5218L | IC, Class AA : H.P. AMP | |
| IC901 | MB88511-224N | IC, MICROCOMPUTER;MECHANICAL | |
| IC902 | BA6218 | IC, REEL MOTOR CONTROL | |
| IC903 | M5218L | IC, MUSIC SELECTOR AMP | |
| IC971 | GP2S06BC | IC, PHOTO COUPLER | |
| | | | |
| | | TRANSISTOR(S) | |
| | | | |
| Q1, 2 | 2SJ164PQRTA | TRANSISTOR | |
| Q3-6 | 2SK381BCDTA | TRANSISTOR | |
| Q7, 8 | 2SJ164PQRTA | TRANSISTOR | |
| Q9, 10 | 2SD1450RSTA | TRANSISTOR | |
| Q11-14 | 2SC3311AQSTA | TRANSISTOR | |
| Q17, 18 | 2SA1309AQSTA | TRANSISTOR | |
| Q301, 302 | 2SC3311AQSTA | TRANSISTOR | |
| Q303 | 2SB621ARSTA | TRANSISTOR | ⚠ |
| Q304 | 2SD592A | TRANSISTOR | |
| Q305, 306 | 2SA1309AQSTA | TRANSISTOR | |
| Q401-404 | 2SC3311AQSTA | TRANSISTOR | |
| Q551 | 2SA1309AQSTA | TRANSISTOR | |
| Q601 | 2SA1309AQSTA | TRANSISTOR | ⚠ |
| Q602, 603 | 2SC3311AQSTA | TRANSISTOR | ⚠ |
| Q604 | 2SD2037EFTA | TRANSISTOR | |
| Q605 | 2SB1357EFTA | TRANSISTOR | |
| Q606 | 2SD2037EFTA | TRANSISTOR | |
| Q607 | 2SB621ARSTA | TRANSISTOR | |
| Q608 | 2SD2037EFTA | TRANSISTOR | |
| Q609 | 2SC3311AQSTA | TRANSISTOR | ⚠ |
| Q610 | 2SA1309AQSTA | TRANSISTOR | ⚠ |
| Q901 | 2SC3311AQSTA | TRANSISTOR | |
| Q902 | DTA114ESTP | TRANSISTOR | |
| Q903 | DTC114ESTP | TRANSISTOR | |
| Q904 | 2SB1030RSTTA | TRANSISTOR | ⚠ |
| Q905 | DTA114ESTP | TRANSISTOR | |
| Q906 | DTC114ESTP | TRANSISTOR | |
| Q907 | 2SB1030RSTTA | TRANSISTOR | ⚠ |
| Q908 | DTC114YSTP | TRANSISTOR | |
| Q909 | 2SC3311AQSTA | TRANSISTOR | |
| Q910 | 2SB1030RSTTA | TRANSISTOR | ⚠ |
| Q911 | 2SC3311AQSTA | TRANSISTOR | |
| Q912 | DTC114ESTP | TRANSISTOR | |
| Q915 | DTC114YSTP | TRANSISTOR | |
| Q916 | 2SB1030RSTTA | TRANSISTOR | |
| Q917 | 2SD592A | TRANSISTOR | |
| Q918 | 2SC3311AQSTA | TRANSISTOR | |
| Q919-921 | DTA114ESTP | TRANSISTOR | |
| Q923, 924 | DTA114ESTP | TRANSISTOR | |
| Q925 | DTC114ESTP | TRANSISTOR | |
| Q926 | 2SB1030RSTTA | TRANSISTOR | |
| Q927 | 2SC3311AQSTA | TRANSISTOR | (EB) |
| | | | |
| | | DIODE(S) | |
| | | | |
| D1, 2 | MA167TA | DIODE | |
| D3-8 | MA165TA | DIODE | |
| D301 | MA165TA | DIODE | |
| D302 | MA4056MTA | DIODE | |
| D303 | MA165TA | DIODE | |
| D551-554 | MA165TA | DIODE | |
| D555, 556 | MA4051MTA | DIODE | |
| D601-606 | 1SR35200TB | DIODE | ⚠ |
| D607, 608 | MA4091MTA | DIODE | |
| D609 | MA4200M | DIODE | |
| D610 | MA4062HTA | DIODE | |
| D611 | 1SR35200TB | DIODE | ⚠ |
| D612 | MA165TA | DIODE | |
| D613 | MA4120M | DIODE | |
| D614 | MA165TA | DIODE | |
| D615 | MA4330MTA | DIODE | |
| D901, 902 | 1SR35200TB | DIODE | |
| D903 | MA165TA | DIODE | ⚠ |
| D904-909 | MA165TA | DIODE | |
| D910 | MA4051MTA | DIODE | |
| D911 | MA165TA | DIODE | |
| D913 | MA4056H | DIODE | |
| D914 | MA4091MTA | DIODE | |
| D915, 916 | MA165TA | DIODE | ⚠ |
| D917-921 | MA165TA | DIODE | |
| D924 | MA165TA | DIODE | |
| D971, 972 | 1SS133 | DIODE | |
| | | | |
| | | VARIABLE RESISTOR(S) | |
| | | | |
| VR1, 2 | EVNDXAA00B53 | V.R, PLAYBACK GAIN ADJ. | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| VR1A | EWGU2A029A54 | V. R, REC. LEVEL CONTROL | |
| VR2A | EVJ02SF06G15 | V. R, BALANCE CONTROL | |
| VR3, 4 | EVNDXAA00B14 | V. R, OVERALL GAIN ADJ. | |
| VR301, 302 | EVNDXAA00B14 | V. R, OVERALL FREQ. ADJ. | |
| VR303 | EVJ02VF04B53 | V. R, BIAS CURRENT ADJ. | |
| VR701 | EVU57A043A14 | V. R, HEADPHONES CONTROL | |
| | | | |
| | | COIL(S) | |
| | | | |
| L1, 2 | RLZ0003 | COIL | |
| L3, 4 | SLQX272-1YT | COIL | |
| L301 | SL09B4-K | COIL | |
| L302, 303 | SL09B1-K | COIL | |
| L401, 402 | QLM9Z10K | COIL | |
| L403, 404 | SLM1B8-K | COIL | |
| | | | |
| | | TRANSFORMER(S) | |
| | | | |
| T601 | RTP1K4B007-V | POWER TRANSFORMER | (EB) ⚠ |
| T601 | RTP1K4C004-V | POWER TRANSFORMER | (P, PC) ⚠ |
| T601 | RTP1K4E008-V | POWER TRANSFORMER | (E, E5, EG) ⚠ |
| | | | |
| | | OSCILLATOR(S) | |
| | | | |
| X551 | EF0GC4004T4 | CERAMIC FILTER | |
| X901 | EF0GC6004T4 | CERAMIC FILTER | |
| | | | |
| | | DISPLAY TUBE | |
| | | | |
| FL551 | RSL0018-F | DISPLAY TUBE (FL METER) | |
| | | | |
| | | SWITCH(ES) | |
| | | | |
| S701 | EVQQTG05R | SW, STOP | |
| S702 | EVQQTG05R | SW, F. F. | |
| S703 | EVQQTG05R | SW, REW. | |
| S704 | EVQQTG05R | SW, PLAYBACK | |
| S705 | EVQQTG05R | SW, RECORD | |
| S706 | EVQQTG05R | SW, PAUSE | |
| S707 | EVQQTG05R | SW, DOLBY NR C | |
| S708 | EVQQTG05R | SW, DOLBY NR B | |
| S709 | EVQQTG05R | SW, MPX FILTER | |
| S710 | SSS166 | SW, TIMER | |
| S711 | EVQQTG05R | SW, COUNTER RESET | |
| S713 | EVQQTG05R | SW, METER RANGE | |
| S714 | EVQQTG05R | SW, MEMORY REPEAT | |
| S715 | EVQQTG05R | SW, MEMORY STOP | |
| S716 | EVQQTG05R | SW, APRS | |
| S717 | EVQQTG05R | SW, AUTO REC MUTE | |
| S718 | SSH1230 | SW, POWER | |
| S971 | RSH1A89Z | SW, MODE | |
| S972 | RSH1A90Z | SW, HALF | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| S973 | RSH1A90Z | SW, ATS | |
| S975 | RSH1A90Z | SW, REC INHIBIT | |
| S976 | RSH1A90Z | SW, ATS | |
| | | | |
| | | CONNECTOR(S) AND SOCKET(S) | |
| | | | |
| CN1 | SJT30545JQ | CONNECTOR(5P) | |
| CN3 | SJSD1105 | CONNECTOR(11P) | |
| CN4 | RJS1A1703 | CONNECTOR(3P) | |
| CN5 | RJU003K010M | SOCKET(10P) | |
| CN6A-6C | RJS1A1703 | CONNECTOR(3P) | |
| CN7-9 | RJU003K010M | SOCKET(10P) | |
| CN10 | SJT30545JQ | CONNECTOR(5P) | |
| CN11 | SJT30345JQ | CONNECTOR(3P) | |
| CN201 | RJS1A1703 | CONNECTOR(3P) | |
| CN201A | RJS2T4ZA | CONNECTOR(2P) | |
| CN601 | RJS1A1101 | SOCKET(1P) | ⚠ |
| CN603 | RJS1A1101 | SOCKET(1P) | ⚠ |
| CN606-611 | RJS1A1101 | SOCKET(1P) | |
| CP1 | SJS50578JQ | SOCKET(5P) | |
| CP2 | SJTD513 | CONNECTOR(5P) | |
| CP5 | RJT003K010 | CONNECTOR(10P) | |
| CP7-9 | RJT003K010 | CONNECTOR(10P) | |
| CP10 | SJS50578JQ | SOCKET(5P) | |
| CP11 | SJS50378JQ | SOCKET(3P) | |
| | | | |
| | | GND PART(S) | |
| | | | |
| E1-3 | SNE1004-1 | GND PLATE | |
| E701 | SUSD165 | GND SPRING | |
| | | | |
| | | JACK(S) | |
| | | | |
| JK1 | SJF3069N | TERMINAL BOARD | |
| JK2 | SJJ146B | JACK, HEADPHONES | |
| JK3, 4 | RJJ65MS01 | JACK, MIC | |
| JK6 | SJS9236 | AC INLET | (E, E5, EB, EG) ⚠ |
| JK6 | SJSD16 | AC INLET | (P, PC) ⚠ |
| | | | |
| | | LED BLOCK | |
| | | | |
| ZD701 | LN021490PH | LED BLOCK ASS'Y | |
| | | | |
| | | CERAMIC FILTER(S) | |
| | | | |
| CF201 | RSXZ935KM01 | CERAMIC FILTER | |
| | | | |
| | | JAMPER(S) | |
| | | | |
| J201, 202 | ERJ6GEY0R00V | CHIP JAMPER | |
| | | | |
| | | | |

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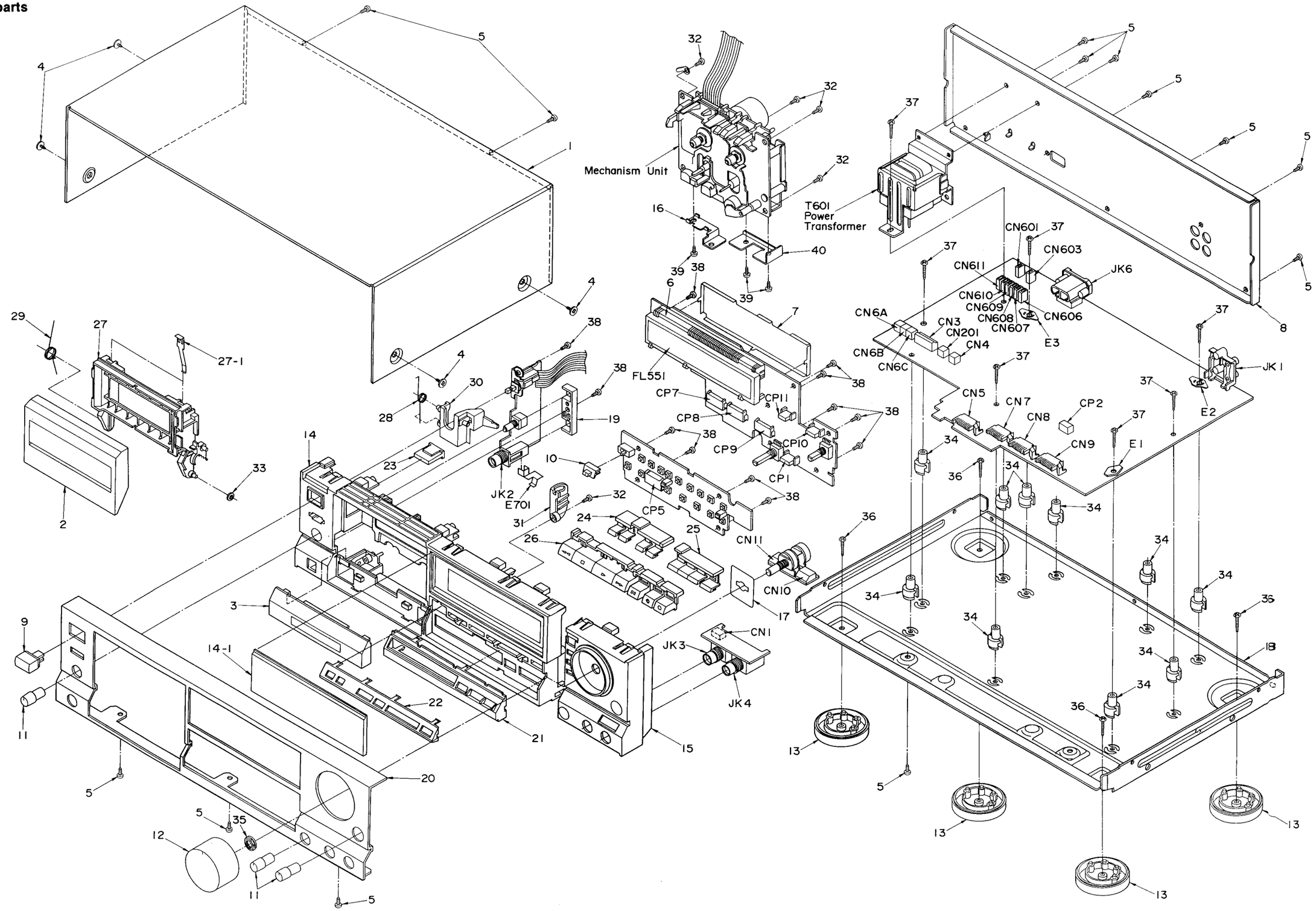
| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| | | | |
| | | CABINET AND CHASSIS | |
| | | | |
| 1 | RKM0036-K | CABINET | |
| 2 | RYF0027 | CASSETTE LID | |
| 3 | RYQ0032 | ORNAMENT | |
| 4 | SNE2129-1 | SCREW | |
| 5 | XTBS3+8JFZ1 | SCREW | |
| 6 | RMN0021 | FL HOLDER | |
| 7 | RSC0048 | SHIELD PLATE | |
| 8 | RGR0024-B | REAR PANEL | (E) |
| 8 | RGR0024-D | REAR PANEL | (E5) |
| 8 | RGR0024-F | REAR PANEL | (EB) |
| 8 | RGR0024-G | REAR PANEL | (P, PC) |
| 8 | RGR0024-M | REAR PANEL | (EG) |
| 9 | RGU0030 | BUTTON, POWER | |
| 10 | RGV0022 | KNOB, TIMER | |
| 11 | RGW0032 | KNOB, BALANCE LEVEL | |
| 12 | RGW0033 | KNOB, REC LEVEL | |
| 13 | RKA0009-1 | FOOT | |
| 14 | RFKNSB555EAK | FRONT GRILLE ASS'Y(1) | |
| 14-1 | RKW0038 | TRANSPARENT PLATE | |
| 15 | RFKNSB655EBK | FRONT GRILLE ASS'Y(2) | |
| 16 | RMC0040 | BRACKET | |
| 17 | RMC0056 | SHIELD PLATE | |
| 18 | RMK0026-1 | CHASSIS | |
| 19 | RMN0022 | ORNAMENT | |
| 20 | RFKGSB555E-K | FRONT PANEL ASS'Y | (E, E5, EB, EG) |
| 20 | RFKGSB555P-K | FRONT PANEL ASS'Y | (P, PC) |
| 21 | RGK0117 | ORNAMENT, BUTTON(A) | |
| 22 | RGK0119 | ORNAMENT, BUTTON(B) | |
| 23 | RGU0130 | BUTTON, EJECT | |
| 24 | RFKNSB555E-K | BUTTON ASS'Y, COUNTER | |
| 25 | RGU0132 | BUTTON, NOISE REDUCTION | |
| 26 | RGU0133 | BUTTON, OPERATION | |
| 27 | RKF0020A-3 | CASSETTE HOLDER | |
| 27-1 | QBP2006A | SPRING, TAPE PRESSURE | |
| 28 | RME0032 | SPRING | |
| 29 | RME0034 | SPRING | |
| 30 | RML0086 | EJECT LEVER | |
| 31 | RMR0153 | DAMPER GEAR ASS'Y | |
| 32 | XTB3+10JFZ | SCREW | |
| 33 | SUD444-1 | WASHER | |
| 34 | SHE187-2 | HOLDER | |
| 35 | SNE4021-1 | NUT | |
| 36 | XTB3+6J | SCREW | |
| 37 | XTB3+20J | SCREW | |
| 38 | XTB3+8JFZ | SCREW | |
| 39 | XTB26+4FFZ | SCREW | |
| 40 | RSC0076 | SHIELD PLATE | |
| | | | |
| | | PACKING MATERIAL | |
| | | | |
| P1 | RPG0256 | CARTON BOX | (PC, E, E5, EB, EG) |
| P1 | RPG0300 | CARTON BOX | (P) |
| P2 | RPN0179 | PAD, FRONT/BACK | |
| P3 | SPS5185 | PAD, ACCESSORIES | |
| P4 | SPP756 | PROTECTION COVER | |
| | | | |
| | | ACCESSORIES | |
| | | | |
| A1 | RQF0297 | INSTRUCTION MANUAL | (E, E5) |
| A1 | RQF0298 | INSTRUCTION MANUAL | (EB) |
| A1 | RQF0299 | INSTRUCTION MANUAL | (EG) |
| A1 | RQF0300 | INSTRUCTION MANUAL | (P) |
| A1 | RQF0301 | INSTRUCTION MANUAL | (PC) |
| A2 | SFDAC05E03 | POWER CORD | (E, E5, EG) ⚠ |
| A2 | SJA175 | POWER CORD | (PC) ⚠ |
| A2 | SJA175-1 | POWER CORD | (P) ⚠ |
| A2 | SJA193-1 | POWER CORD | (EB) ⚠ |
| A3 | SJP2249-3 | STEREO CONNECTION CABLE | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | MECHANISM UNIT | |
| | | | |
| MECH1 | RAA0801 | MECHANISM ASS'Y | |
| | | | |
| | | PRINTED CITCUIT BOARDS | |
| | | | |
| PWB1 | REP0308A | MAIN P.C.B. ASS'Y | (E, E5, EG) |
| PWB1 | REP0308B | MAIN P.C.B. ASS'Y | (EB) |
| PWB1 | REP0308C | MAIN P.C.B. ASS'Y | (P, PC) |
| | | | |
| PWB2 | REP0309A | SUB P.C.B. ASS'Y | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

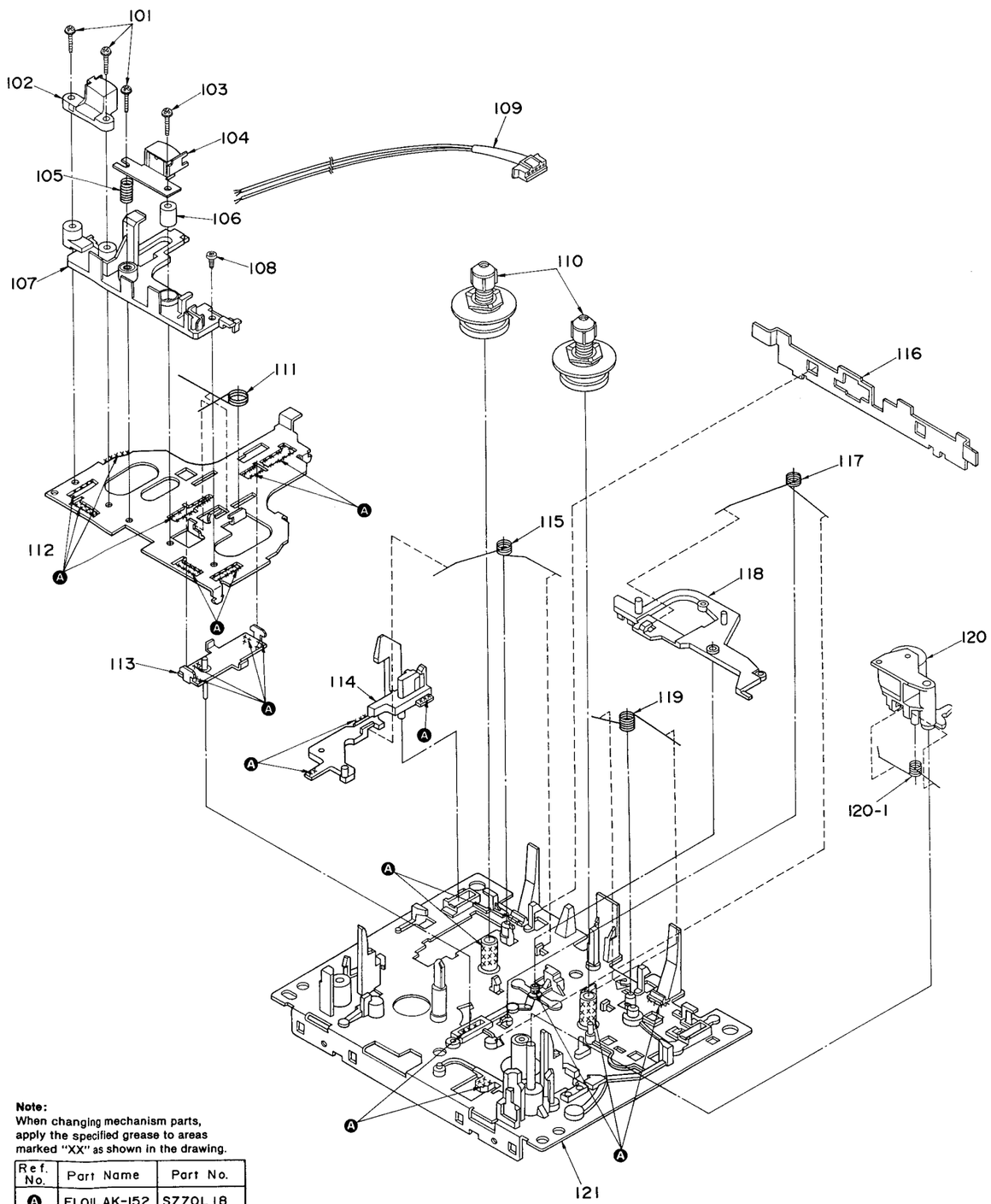
## ■ EXPLODED VIEWS

**• Cabinet parts**



• **Mechanical parts**

**(Top view)**

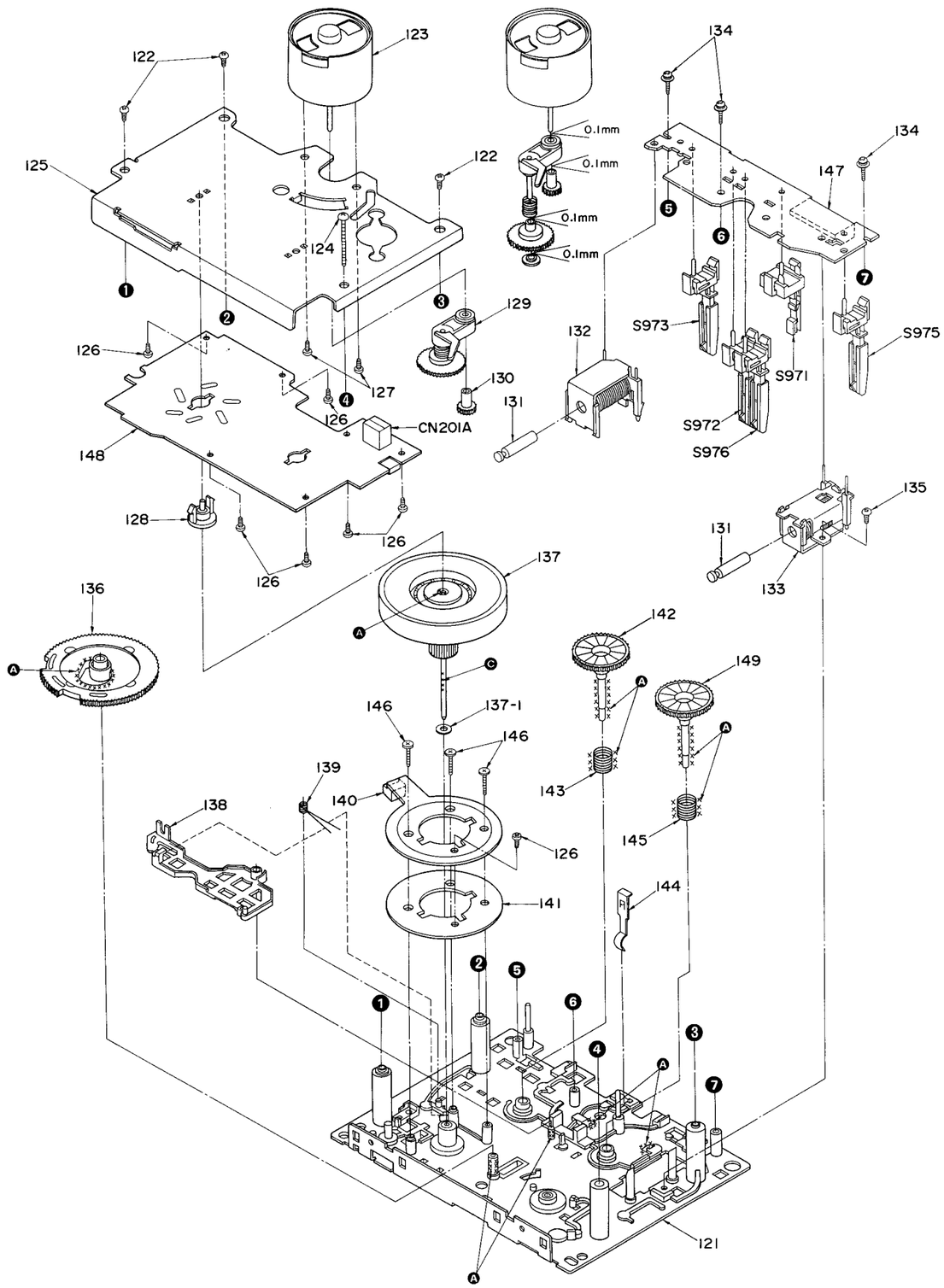



**Note:**
When changing mechanism parts, apply the specified grease to areas marked "XX" as shown in the drawing.

| Ref. No. | Part Name | Part No. |
|---|---|---|
| A | FLOIL AK-152 | SZZOL 18 |
| C | FLOIL947P | RZZOL 02 |



**(Bottom view)**



# ■ REPLACEMENT PARTS LIST

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| | | | |
| | | MECHANISM PARTS LIST | |
| | | | |
| 101 | QHQ1361A | SCREW | |
| 102 | SJH96-1 | E HEAD | |
| 103 | RHE5201ZA | SCREW | |
| 104 | RJH4C35GZAM | R/P HEAD | |
| 105 | QBC1278A | SPRING | |
| 106 | RHM278ZA | SPACER | |
| 107 | RMD5013ZC | HEAD SPACER | |
| 108 | XTN2+5F | SCREW | |
| 109 | REX0075 | LEAD WIRE BLOCK | |
| 110 | RXR0001 | REEL TABLE | |
| 111 | RUW139ZA | SPRING | |
| 112 | RMA0047B | HEAD BASE | |
| 113 | RXQ0078 | MAIN ROD ASS'Y | |
| 114 | RMM0012-2 | EJECT ROD(L) | |
| 115 | RME0018-1 | SPRING | |
| 116 | RUB502Z | LEVER | |
| 117 | RME0020 | SPRING | |
| 118 | RXL0007 | BRAKE LEVER | |
| 119 | RUW142ZA | SPRING | |
| 120 | RXP0004 | PINCH ROLLER ARM | |
| 120-1 | RUW140ZB | SPRING | |
| 121 | RFKRSB555E-K | CHASSIS ASS'Y | |
| 122 | XTN26+7J | SCREW | |
| 123 | MMN-6F4RA88 | REEL MOTOR | |
| 124 | XTN26+26F | SCREW | |
| 125 | RMA0048A | FLYWHEEL PLATE | |
| 126 | XTN2+3F | SCREW | |
| 127 | XSN26+3 | SCREW | |
| 128 | RMR0141 | THRUST BEARING | |
| 129 | RXG0009 | GEAR ASS'Y | |
| 130 | RDG0034 | REEL MOTOR GEAR | |
| 131 | RUB428Z | MOVING IRON CORE | |
| 132 | RSJ0003 | SOLENOID | |
| 133 | RXQ0011 | BRAKE SOLENOID | |
| 134 | XTW2+8S | SCREW | |
| 135 | XTN26+4F | SCREW | |
| 136 | RDG0030 | MAIN GEAR | |
| 137 | RXF0008 | FLYWHEEL | |
| 137-1 | RNW139ZA | WASHER | |
| 138 | RML0037 | LEVER | |
| 139 | RUW147ZA | SPRING | |
| 140 | RJS2T7ZA | CONNECTOR(2P) | |
| 141 | RMQ0037 | FG YOKE | |
| 142 | RXG0003 | REEL TABLE GEAR | |
| 143 | RUQ112ZA | SPRING | |
| 144 | RUS609Z | TAPE PRESSURE SPRING | |
| 145 | RUQ111ZA | SPRING | |
| 146 | RHE5204ZA | SCREW | |
| 147 | RJS10T7ZA | CONNECTOR(10P) | |
| 148 | REP0268 | STATER P.C.B. ASS'Y | |
| 149 | RDG0033 | REEL TABLE GEAR | |

# ■ RESISTORS & CAPACITORS

Notes : * Capacity valuse are in microfarads (uF) unless specified otherwise, P=Pico-farads(pF) F=Farads(F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000(OHM) , 1M=1,000k(OHM)

| Ref. No. | Part No. | Values & Remarks |
|---|---|---|
| | | |
| | | RESISTORS |
| | | |
| R1, 2 | ERDS2TJ223T | 1/4W 22K |
| R3, 4 | ERDS2TJ473T | 1/4W 47K |
| R5, 6 | ERDS2TJ102T | 1/4W 1K |
| R7, 8 | ERDS2TJ225T | 1/4W 2.2M |
| R9, 10 | ERDS2TJ104T | 1/4W 100K |
| R11, 12 | ERDS2TJ183T | 1/4W 18K |
| R13, 14 | ERDS2TJ101T | 1/4W 100 |
| R15, 16 | ERDS2TJ820T | 1/4W 82 |
| R17, 18 | ERDS2TJ153T | 1/4W 15K |
| R19, 20 | ERDS2TJ103T | 1/4W 10K |
| R21, 22 | ERDS2TJ564T | 1/4W 560K |
| R23, 24 | ERDS2TJ682T | 1/4W 6.8K |
| R25, 26 | ERDS2TJ223T | 1/4W 22K |
| R27, 28 | ERDS2TJ103T | 1/4W 10K |
| R29, 30 | ERDS2TJ472T | 1/4W 4.7K |
| R31, 32 | ERDS2TJ392T | 1/4W 3.9K |
| R33, 34 | ERDS2TJ102T | 1/4W 1K |
| R35, 36 | ERDS2TJ820T | 1/4W 82 |
| R39, 40 | ERDS2TJ121T | 1/4W 120 |
| R41, 42 | ERDS2TJ392T | 1/4W 3.9K |
| R43, 44 | ERDS2TJ152T | 1/4W 1.5K |
| R45, 46 | ERDS2TJ272T | 1/4W 2.7K |
| R47, 48 | ERDS2TJ104T | 1/4W 100K |
| R49, 50 | ERDS2TJ564T | 1/4W 560K |
| R57, 58 | ERDS2TJ153T | 1/4W 15K |
| R59, 60 | ERDS2TJ182T | 1/4W 1.8K |
| R61, 62 | ERDS2TJ333T | 1/4W 33K |
| R63, 64 | ERDS2TJ472T | 1/4W 4.7K |
| R65, 66 | ERDS2TJ102T | 1/4W 1K |
| R67, 68 | ERDS2TJ223T | 1/4W 22K |
| R69, 70 | ERDS2TJ472T | 1/4W 4.7K |
| R71, 72 | ERDS2TJ561T | 1/4W 560 |
| R201 | ERJ6GEYJ333V | 1/10W 33K |
| R202 | ERJ6GEYJ683V | 1/10W 68K |
| R203-205 | ERJ6GEYJ1R5V | 1/10W 1.5 |
| R206 | ERJ8GEYJ222V | 1/8W 2.2K |
| R208 | ERJ6GEYJ222V | 1/10W 2.2K |
| R209-211 | ERJ6GEYJ4R7V | 1/10W 4.7 |
| R216 | ERJ8GEYJ222V | 1/8W 2.2K |
| R301 | ERDS2TJ1R0T | 1/4W 1.0 |
| R302, 303 | ERDS2TJ183T | 1/4W 18K |
| R304, 305 | ERDS2TJ100T | 1/4W 10 |
| R306 | ERDS2TJ471T | 1/4W 470 |
| R307 | ERDS2TJ222T | 1/4W 2.2K |
| R308 | ERDS2TJ472T | 1/4W 4.7K |
| R311, 312 | ERDS2TJ100T | 1/4W 10 |
| R313, 314 | ERDS2TJ154T | 1/4W 150K |
| R315, 316 | ERDS2TJ153T | 1/4W 15K |
| R317 | ERDS2TJ822T | 1/4W 8.2K |
| R318 | ERDS2TJ272T | 1/4W 2.7K |
| R319 | ERDS2TJ102T | 1/4W 1K |
| R320 | ERDS2TJ332T | 1/4W 3.3K |
| R321 | ERDS1FVJ121T | 1/2W 120 (E, E5, EG, P, PC) ⚠ |
| R321 | ERDS1FVJ561T | 1/2W 560 (EB) ⚠ |
| R322 | ERDS2TJ563T | 1/4W 56K |
| R323 | ERDS2TJ103T | 1/4W 10K |
| R324 | ERDS2TJ563T | 1/4W 56K |
| R325-327 | ERDS1FVJ561T | 1/2W 560 (EB) |
| R401, 402 | ERDS2TJ101T | 1/4W 100 |
| R403, 404 | ERDS2TJ272T | 1/4W 2.7K |
| R405, 406 | ERDS2TJ103T | 1/4W 10K |
| R407, 408 | ERDS2TJ242 | 1/4W 2.4K |
| R409-412 | ERDS2TJ684T | 1/4W 680K |
| R413, 414 | ERDS2TJ562T | 1/4W 5.6K |
| R415, 416 | ERDS2TJ102T | 1/4W 1K |
| R417, 418 | ERDS2TJ332T | 1/4W 3.3K |
| R419, 420 | ERDS2TJ333T | 1/4W 33K |
| R421-424 | ERDS2TJ823T | 1/4W 82K |
| R425, 426 | ERDS2TJ683T | 1/4W 68K |
| R427, 428 | ERDS2TJ222T | 1/4W 2.2K |
| R429, 430 | ERDS2TJ512 | 1/4W 5.1K |
| R431, 432 | ERDS2TJ242 | 1/4W 2.4K |
| R551, 552 | ERDS2TJ104T | 1/4W 100K |
| R553, 554 | ERDS2TJ563T | 1/4W 56K |
| R555, 556 | ERDS2TJ104T | 1/4W 100K |
| R557, 558 | ERDS2TJ220T | 1/4W 22 |
| R559, 560 | ERDS2TJ152T | 1/4W 1.5K |
| R561 | ERDS2TJ102T | 1/4W 1K |
| R562 | ERDS2TJ471T | 1/4W 470 |
| R563, 564 | ERDS2TJ103T | 1/4W 10K |
| R565 | ERDS2TJ105T | 1/4W 1M |
| R567 | ERDS1FVJ120T | 1/2W 12 |
| R569, 570 | ERDS2TJ101T | 1/4W 100 |
| R571 | ERDS2TJ152T | 1/4W 1.5K |
| R572 | ERDS2TJ102T | 1/4W 1K |
| R573 | ERDS2TJ560T | 1/4W 56 |
| R574 | ERDS2TJ220T | 1/4W 22 |
| R575, 576 | ERDS2TJ821 | 1/4W 820 |
| R601 | ERDS2TJ472T | 1/4W 4.7K ⚠ |
| R602 | ERDS2TJ472T | 1/4W 4.7K |
| R603 | ERDS2TJ103T | 1/4W 10K |
| R604 | ERDS2TJ472T | 1/4W 4.7K ⚠ |
| R605 | ERDS1FVJ150T | 1/2W 15 (E, E5, EG, P, PC) ⚠ |
| R605 | ERD2FCVG150T | 1/4W 15 (EB) ⚠ |
| R606 | ERDS1FVJ100T | 1/2W 10 (E, E5, EG, P, PC) ⚠ |
| R606 | ERD2FCVG100T | 1/4W 10 (EB) ⚠ |
| R607, 608 | ERDS2TJ102T | 1/4W 1K |
| R611, 612 | ERDS1FVJ270T | 1/2W 27 (E, E5, EG, P, PC) ⚠ |
| R611, 612 | ERD2FCVG270T | 1/4W 27 (EB) ⚠ |
| R613 | ERDS2TJ222T | 1/4W 2.2K ⚠ |
| R614 | ERDS2TJ222T | 1/4W 2.2K |
| R615 | ERDS2TJ1R0T | 1/4W 1.0 ⚠ |
| R616 | ERDS2TJ391T | 1/4W 390 ⚠ |
| R617, 618 | ERDS2TJ221T | 1/4W 220 (EB) |
| R617, 618 | ERDS2TJ560T | 1/4W 56 (E, E5, EG, P, PC) |
| R619, 620 | ERQ16NKR15E | 1/6W 0.15 (EB) ⚠ |
| R623, 624 | ERDS2TJ101T | 1/4W 100 (EB) |
| R625 | ERDS2TJ181T | 1/4W 180 (EB) |
| R626, 627 | ERDS2TJ101T | 1/4W 100 (EB) |
| R628 | ERDS2TJ103T | 1/4W 10K |
| R629 | ERDS2TJ472T | 1/4W 4.7K ⚠ |
| R630 | ERD2FCVG100T | 1/4W 10 (EB) ⚠ |
| R631-636 | ERDS2TJ221T | 1/4W 220 (EB) |
| R637, 638 | ERDS2TJ391T | 1/4W 390 ⚠ |
| R701 | ERDS2TJ821T | 1/4W 820 |
| R702 | ERDS2TJ102T | 1/4W 1K |
| R703 | ERDS2TJ122T | 1/4W 1.2K |
| R704 | ERDS2TJ152T | 1/4W 1.5K |
| R705 | ERDS2TJ182T | 1/4W 1.8K |
| R706 | ERDS2TJ222T | 1/4W 2.2K |
| R707 | ERDS2TJ332T | 1/4W 3.3K |
| R708 | ERDS2TJ472T | 1/4W 4.7K |
| R709 | ERDS2TJ682T | 1/4W 6.8K |
| R710 | ERDS2TJ123T | 1/4W 12K |
| R711 | ERDS2TJ223T | 1/4W 22K |
| R712 | ERDS2TJ821T | 1/4W 820 |
| R713 | ERDS2TJ102T | 1/4W 1K |
| R714 | ERDS2TJ122T | 1/4W 1.2K |
| R715 | ERDS2TJ152T | 1/4W 1.5K |
| R716 | ERDS2TJ182T | 1/4W 1.8K |
| R717 | ERDS2TJ181T | 1/4W 180 |
| R718 | ERDS2TJ331T | 1/4W 330 |
| R719, 720 | ERDS2TJ180 | 1/4W 18 |
| R721, 722 | ERDS2TJ330T | 1/4W 33 |
| R723, 724 | ERDS2TJ100T | 1/4W 10 |
| R725, 726 | ERDS2TJ102T | 1/4W 1K |
| R727, 728 | ERDS2TJ332T | 1/4W 3.3K |
| R901 | ERDS2TJ105T | 1/4W 1M |
| R902 | ERDS2TJ103T | 1/4W 10K |

| Ref. No. | Part No. | Values & Remarks |
|---|---|---|
| R903 | ERDS2TJ471T | 1/4W 470 |
| R904 | ERDS2TJ103T | 1/4W 10K |
| R905 | ERDS2TJ182T | 1/4W 1.8K |
| R906 | ERDS2TJ682T | 1/4W 6.8K |
| R907 | ERDS2TJ103T | 1/4W 10K |
| R908 | ERDS2TJ392T | 1/4W 3.9K |
| R909 | ERDS2TJ272T | 1/4W 2.7K |
| R910 | ERDS2TJ103T | 1/4W 10K |
| R911 | ERDS2TJ392T | 1/4W 3.9K |
| R912 | ERDS2TJ272T | 1/4W 2.7K |
| R913 | ERDS2TJ561T | 1/4W 560 |
| R914 | ERDS2TJ102T | 1/4W 1K |
| R915 | ERDS2TJ103T | 1/4W 10K |
| R916 | ERDS2TJ332T | 1/4W 3.3K |
| R917, 918 | ERDS2TJ103T | 1/4W 10K |
| R919, 920 | ERDS2TJ223T | 1/4W 22K |
| R922 | ERDS2TJ472T | 1/4W 4.7K |
| R923 | ERDS2TJ152T | 1/4W 1.5K |
| R924 | ERDS2TJ223T | 1/4W 22K ⚠ |
| R925 | ERDS2TJ821T | 1/4W 820 |
| R926 | ERDS2TJ223T | 1/4W 22K ⚠ |
| R927 | ERDS2TJ821T | 1/4W 820 |
| R928 | ERG1SJ150E | 1W 15 ⚠ |
| R929 | ERG1SJ180E | 1W 18 ⚠ |
| R930 | ERDS2TJ223T | 1/4W 22K ⚠ |
| R931 | ERDS2TJ821T | 1/4W 820 |
| R932 | ERDS2TJ103T | 1/4W 10K (E, E5, EG, |
| | | P, PC) |
| R932 | ERDS2TJ472T | 1/4W 4.7K (EB) |
| R933 | ERDS2TJ472T | 1/4W 4.7K |
| R935 | ERDS2TJ682T | 1/4W 6.8K |
| R936 | ERDS2TJ223T | 1/4W 22K |
| R940 | ERDS2TJ562T | 1/4W 5.6K |
| R942 | ERDS2TJ821T | 1/4W 820 |
| R943 | ERDS2TJ223T | 1/4W 22K |
| R944, 945 | ERDS1FVJ180T | 1/2W 18 ⚠ |
| R946 | ERDS2TJ102T | 1/4W 1K |
| R947, 948 | ERDS2TJ103T | 1/4W 10K |
| R949 | ERDS2TJ472T | 1/4W 4.7K |
| R950 | ERDS2TJ821T | 1/4W 820 |
| R951 | ERDS2TJ101T | 1/4W 100 |
| R952 | ERDS2TJ823T | 1/4W 82K |
| R953 | ERDS2TJ393T | 1/4W 39K |
| R954 | ERDS2TJ472T | 1/4W 4.7K |
| R955 | ERDS2TJ102T | 1/4W 1K |
| R956 | ERDS2TJ473T | 1/4W 47K |
| R957 | ERDS2TJ153T | 1/4W 15K |
| R958 | ERDS2TJ103T | 1/4W 10K |
| R959 | ERDS2TJ152T | 1/4W 1.5K |
| R960 | ERDS2TJ472T | 1/4W 4.7K |
| R961 | ERDS2TJ821T | 1/4W 820 |
| R962 | ERDS2TJ183T | 1/4W 18K |

| Ref. No. | Part No. | Values & Remarks |
|---|---|---|
| R963 | ERDS2TJ473T | 1/4W 47K |
| R964 | ERDS2TJ392T | 1/4W 3.9K |
| R965 | ERDS2TJ104T | 1/4W 100K |
| R970 | ERDS2TJ222T | 1/4W 2.2K |
| R971 | ERDS2TJ332T | 1/4W 3.3K |
| R971A | ERDS2TJ271T | 1/4W 270 |
| R972 | ERDS2TJ472T | 1/4W 4.7K |
| R972A | ERDS2TJ183T | 1/4W 18K |
| R973 | ERDS2TJ682T | 1/4W 6.8K |
| R974 | ERDS2TJ123T | 1/4W 12K |
| R975 | ERDS2TJ223T | 1/4W 22K |
| R977 | ERDS2TJ223T | 1/4W 22K ⚠ |
| R978 | ERDS2TJ473T | 1/4W 47K |
| R979 | ERDS2TJ272T | 1/4W 2.7K |
| R980 | ERDS2TJ472T | 1/4W 4.7K |
| R981 | ERDS2TJ392T | 1/4W 3.9K |
| R982 | ERDS2TJ223T | 1/4W 22K |
| R983 | ERDS2TJ103T | 1/4W 10K |
| R984 | ERDS2TJ472T | 1/4W 4.7K (EB) |
| R985 | ERDS2TJ222T | 1/4W 2.2K (EB) |
| R986 | ERDS2TJ332T | 1/4W 3.3K (EB) |
| R989 | ERDS2TJ822T | 1/4W 8.2K |
| R990 | ERDS2TJ473T | 1/4W 47K |
| | | |
| | | CAPACITORS |
| | | |
| C1, 2 | ECEA1EK4R7B | 25V 4.7U |
| C3, 4 | ECBT1H681KB5 | 50V 680P |
| C5, 6 | ECBT1H102KB5 | 50V 1000P |
| C7, 8 | ECBT1H561KB5 | 50V 560P |
| C9, 10 | ECEA0JU101B | 6.3V 100U |
| C11, 12 | ECQB1H562JZ3 | 50V 5600P |
| C13, 14 | ECEA1EK4R7B | 25V 4.7U |
| C15, 16 | ECBT1H101KB5 | 50V 100P |
| C17, 18 | ECQB1H822JZ3 | 50V 8200P |
| C19, 20 | ECEA1HKR47B | 50V 0.47U |
| C21, 22 | ECEA1CK100B | 16V 10U |
| C23, 24 | ECQV1H273JZ | 50V 0.027U |
| C27, 28 | ECQB1H822JZ3 | 50V 8200P |
| C29, 30 | ECQV1H563JZ3 | 50V 0.056U |
| C33, 34 | ECBT1H101KB5 | 50V 100P |
| C35, 36 | ECEA1HK010B | 50V 1U |
| C37, 38 | ECQP1121JZ | 100V 120P |
| C43, 44 | ECEA1CK100B | 16V 10U |
| C45, 46 | ECEA1EK4R7B | 25V 4.7U |
| C47, 48 | ECEA1HK010B | 50V 1U |
| C49, 50 | ECEA1CK100B | 16V 10U |
| C51, 52 | ECKT1H103ZF | 50V 0.01U |
| C201 | ECUV1E153MB | 25V 0.015U |
| C202 | ECUV1E104KB | 25V 0.1U |
| C203, 204 | ECEV1CA100R | 16V 10U |
| C205, 206 | ECUV1E104KB | 25V 0.1U |

| Ref. No. | Part No. | Values & Remarks |
|---|---|---|
| C207, 208 | ECUV1H470KC | 50V 47P |
| C209-211 | ECEV1EN4R7R | 25V 4.7U |
| C212-214 | ECUV1H103ZFN | 50V 0.01U |
| C215 | ECUV1H472KB | 50V 4700P |
| C217, 218 | ECUV1E104KB | 25V 0.1U |
| C301 | ECQP1153JZ | 100V 0.015U |
| C302 | ECEA1EK4R7B | 25V 4.7U |
| C303 | ECKT1H392KB | 50V 3900P |
| C304, 305 | ECKT1H222KB | 50V 2200P |
| C306 | ECKT1H682KB | 50V 6800P |
| C310 | ECKD1H472KB | 50V 4700P |
| C311 | ECEA1AU101B | 10V 100U |
| C312 | ECKT1H103ZF | 50V 0.01U |
| C313, 314 | ECKT1H223ZF | 50V 0.022U |
| C315, 316 | ECBT1H821KB5 | 50V 820P |
| C317, 318 | ECBT1H121KB5 | 50V 120P |
| C319, 320 | ECQV1H563JZ3 | 50V 0.056U |
| C321, 322 | ECQB1H223JZ3 | 50V 0.022U |
| C323, 324 | ECQB1H103JZ3 | 50V 0.01U |
| C325, 326 | ECKT1H122KB | 50V 1200P |
| C328 | ECBT1H180J5 | 50V 18P |
| C329 | ECEA1EK100B | 25V 10U |
| C330 | ECKT1H103ZF | 50V 0.01U ⚠ |
| C331 | ECBT1H180J5 | 50V 18P |
| C401, 402 | ECBT1H820KB5 | 50V 82P |
| C403, 404 | ECEA1EK4R7B | 25V 4.7U |
| C405, 406 | ECKT1H122KB | 50V 1200P |
| C407, 408 | ECKT1H152KB | 50V 1500P |
| C409, 410 | ECQB1H472JZ3 | 50V 4700P |
| C411, 412 | ECEA1CK100B | 16V 10U |
| C413, 414 | ECQV1H473JZ3 | 50V 0.047U |
| C415, 416 | ECQV1H224JZ3 | 50V 0.22U |
| C417-420 | ECEA1HKR68B | 50V 0.68U |
| C421, 422 | ECQV1H224JZ3 | 50V 0.22U |
| C423, 424 | ECQV1H473JZ3 | 50V 0.047U |
| C425, 426 | ECEA1CK100B | 16V 10U |
| C427, 428 | ECQB1H472JZ3 | 50V 4700P |
| C429, 430 | ECQB1H103JZ3 | 50V 0.01U |
| C431, 432 | ECKT1H102KB | 50V 0.001U |
| C551, 552 | ECQV1H104JZ3 | 50V 0.1U |
| C553, 554 | ECEA0JKS101B | 6.3V 100U |
| C555 | ECKT1H103ZF | 50V 0.01U |
| C556 | ECEA1CK100B | 16V 10U |
| C557 | ECEA1EK4R7B | 25V 4.7U |
| C558 | ECEA1HK010B | 50V 1U |
| C559 | ECBT1C103NS5 | 16V 0.01U |
| C561 | ECBT1C103NS5 | 16V 0.01U |
| C563, 564 | ECEA0JK101B | 6.3V 100U |
| C567, 568 | ECEA1VK100B | 16V 10U |
| C601 | ECKT2H682PEL | 500V 6800P |
| C602, 603 | ECEA1EU222E | 25V 2200U ⚠ |
| C604, 605 | ECKT1H103ZF | 50V 0.01U |

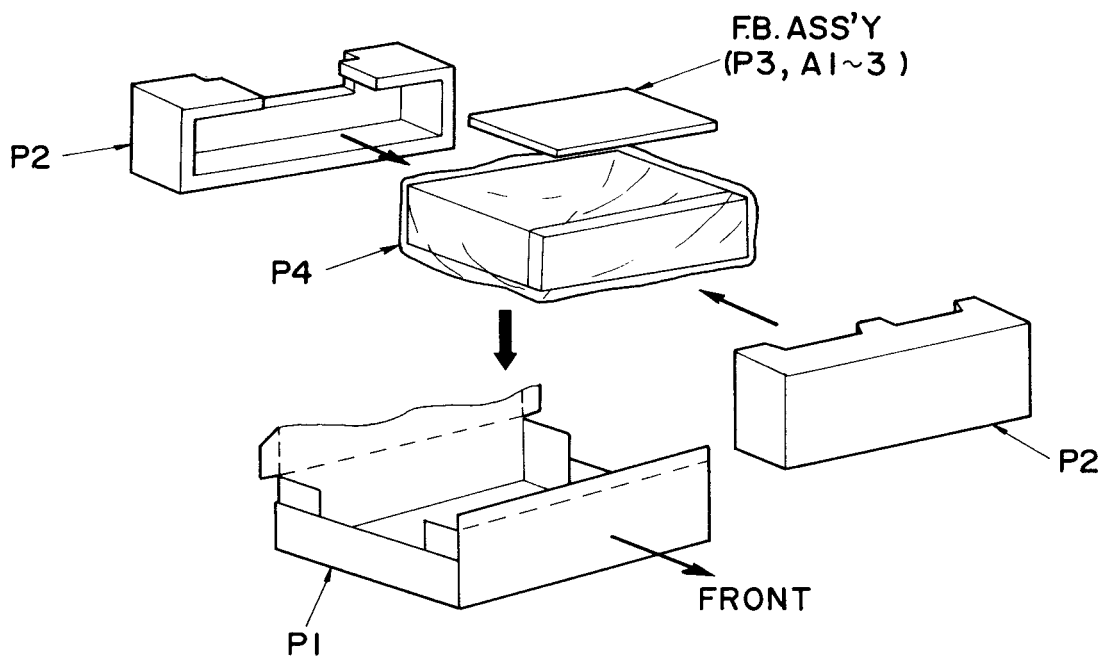
| Ref. No. | Part No. | Values & Remarks |
|---|---|---|
| C606, 607 | ECEA1AU221B | 10V 220U |
| C608, 609 | ECKT1H103ZF | 50V 0.01U |
| C610, 611 | ECEA1AU102B | 10V 1000U |
| C612 | ECEA1EU222E | 25V 2200U ⚠ |
| C613 | ECKT1H103ZF | 50V 0.01U |
| C615 | ECEA1EK100B | 25V 10U |
| C617 | ECEA1HU470B | 50V 47U |
| C618 | ECKT1H103ZF | 50V 0.01U |
| C619, 620 | ECKT1H103ZF | 50V 0.01U ⚠ |
| C621 | ECKT2H682PEL | 500V 6800P ⚠ |

| Ref. No. | Part No. | Values & Remarks |
|---|---|---|
| C701 | ECKT1H223ZF | 50V 0.022U |
| C702, 703 | ECKT1H103ZF | 50V 0.01U |
| C901 | ECEA0JU222B | 6.3V 2200U |
| C902 | ECKT1H103ZF | 50V 0.01U |
| C903 | ECEA1HK010B | 50V 1U |
| C904 | ECEA1EK4R7B | 25V 4.7U |
| C905 | ECKT1H103ZF | 50V 0.01U |
| C906 | ECEA1CN100SB | 16V 10U |
| C907 | ECEA1HK010B | 50V 1U |
| C908 | ECKT1H103ZF | 50V 0.01U |

| Ref. No. | Part No. | Values & Remarks |
|---|---|---|
| C909 | ECQB1H822JZ3 | 50V 8200P |
| C910 | ECEA1CK100B | 16V 10U |
| C911 | ECBT1H470J5 | 50V 47P |
| C912 | ECEA1HK010B | 50V 1U |
| C913 | ECKT1H103ZF | 50V 0.01U |
| C914 | ECEA1EK4R7B | 25V 4.7U |
| C915 | ECEA0JU101B | 6.3V 100U |
| C916 | ECKT1H103ZF | 50V 0.01U |
| C917 | ECEA1HK010B | 50V 1U (EB) |
| C918 | ECKT1H103ZF | 50V 0.01U |

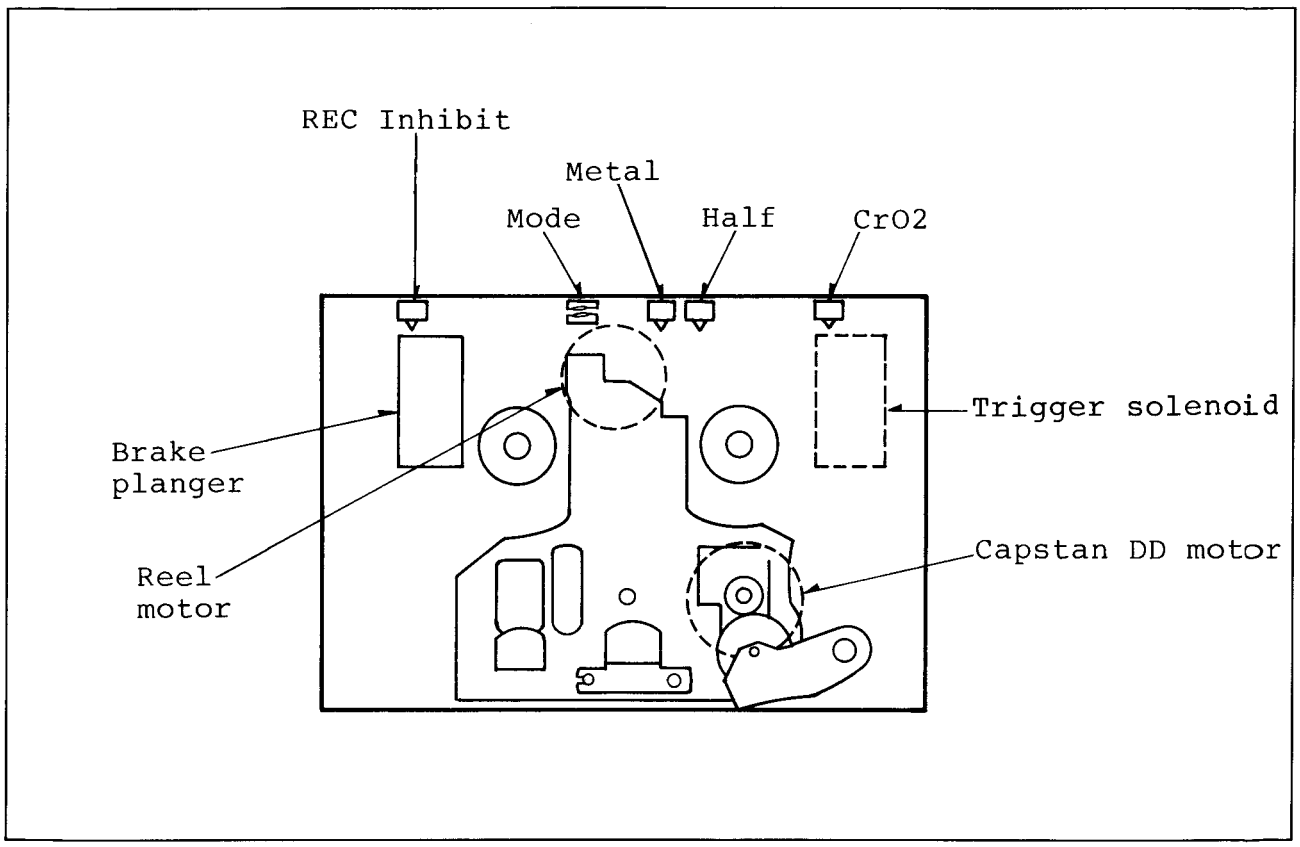
## ■ PACKING

**(Parts list on page 36.)**



# ■ TECHNICAL INFORMATION

## 1. Mechanism composition




**Mechanism detection switches**

Metal, CrO2 ..... ATS detection

Half switch ..... Cassette detection

Mode switch ..... Mechanism mode detection
Low level during PLAY and PAUSE
High level during STOP

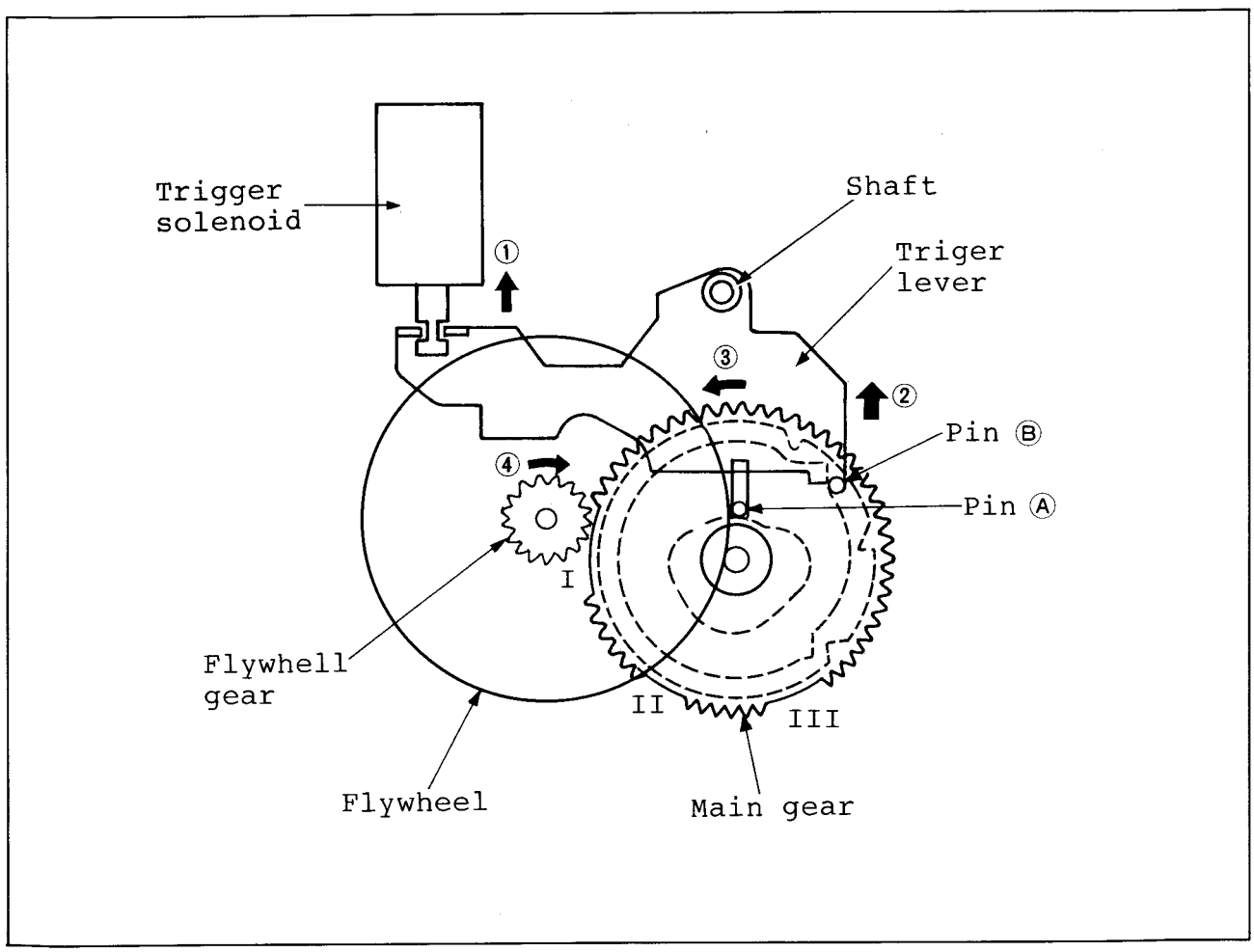
## 2. Mechanism operation

The mechanism operation is controlled by a microcomputer. There are three mechanism modes STOP, PLAY, and PAUSE. These modes are set by the operation of a trigger solenoid in accordance with the commands from the microcomputer.

There are two motors: a DC reel motor and a DD capstan motor.

(1) Setting of the mechanism mode

The microcomputer causes the trigger solenoid to be momentarily drawn in. This operation causes the main gear to move slightly in the direction indicated by arrow ③ and engage with the flywheel gear. When this occurs, the main gear rotates as far as toothless section III, and the PLAY mode begins. The PAUSE and STOP modes are set in the same way.




**Rear View**

**Position of the main gear**

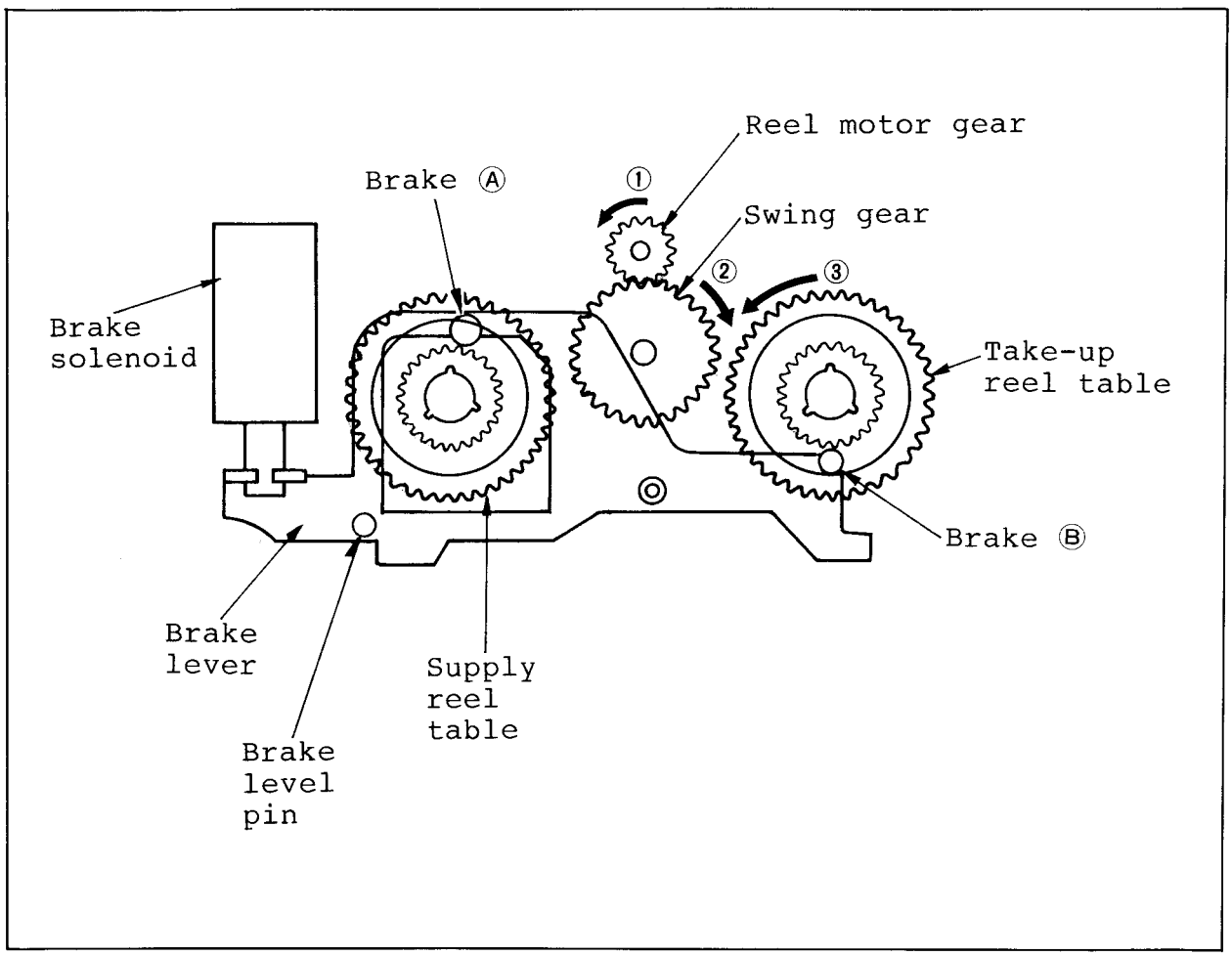
I ..... STOP mode, STOP/FF/REW
II .... PAUSE mode, CUE/REV
III ... PLAY mode, PLAY

* For the PAUSE operation, the mechanism is in the STOP mode.

Pin Ⓐ is connected to the head base plate, and the shape of the main gear causes the head base plate to move up and down in accordance with the mode.

(2) Operation of the reel tables

The reel tables are rotated by the reel motor. During PLAY, the motor rotates in the direction indicated by arrow ①, thus causing the swing gear and the take-up reel table to engage so that the take-up reel table rotates. The winding torque is determined by the reel motor.




**Top View**

During FF/REW, the reel motor rotates in the opposite direction, thus causing the swing gear to swing left or right and transmit the rotation of the motor to the corresponding reel table.

(3) Operation of the brakes

During the PLAY and PAUSE mechanism mode, the brake lever pin is pressed by the head base plate, thus mechanically releasing the brakes. During FF/REW and CUE/REV, the brake solenoid is drawn in, thus releasing the brakes.

## 3. Operation of the mechanism control circuit

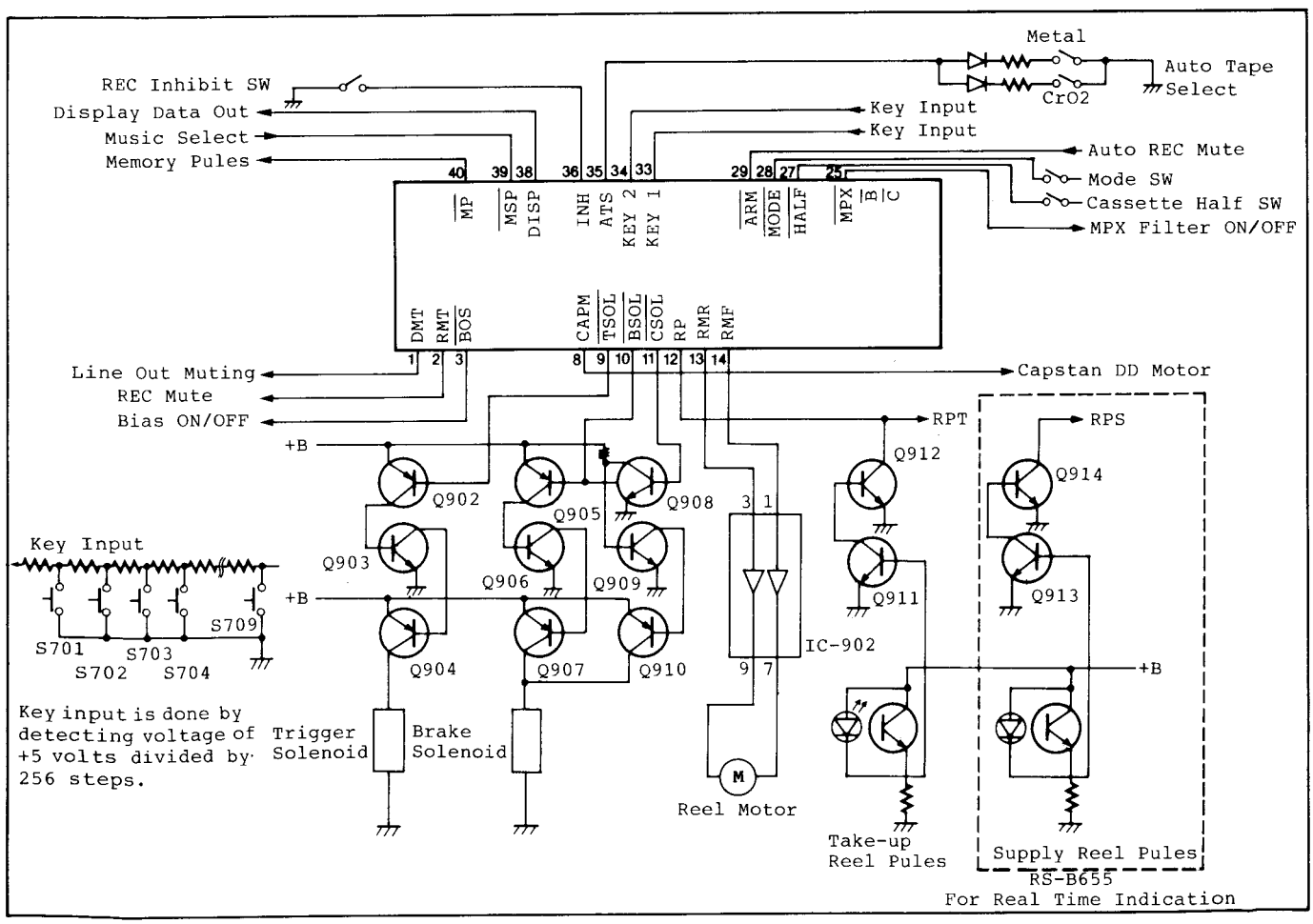
The mechanism and the entire deck are controlled by system control microcomputer IC-901 (MB88511). The signals from the key switches on the front panel are all input via key 1 and key 2.

The key input is detected by voltage detection of 256 division of 5 volts.

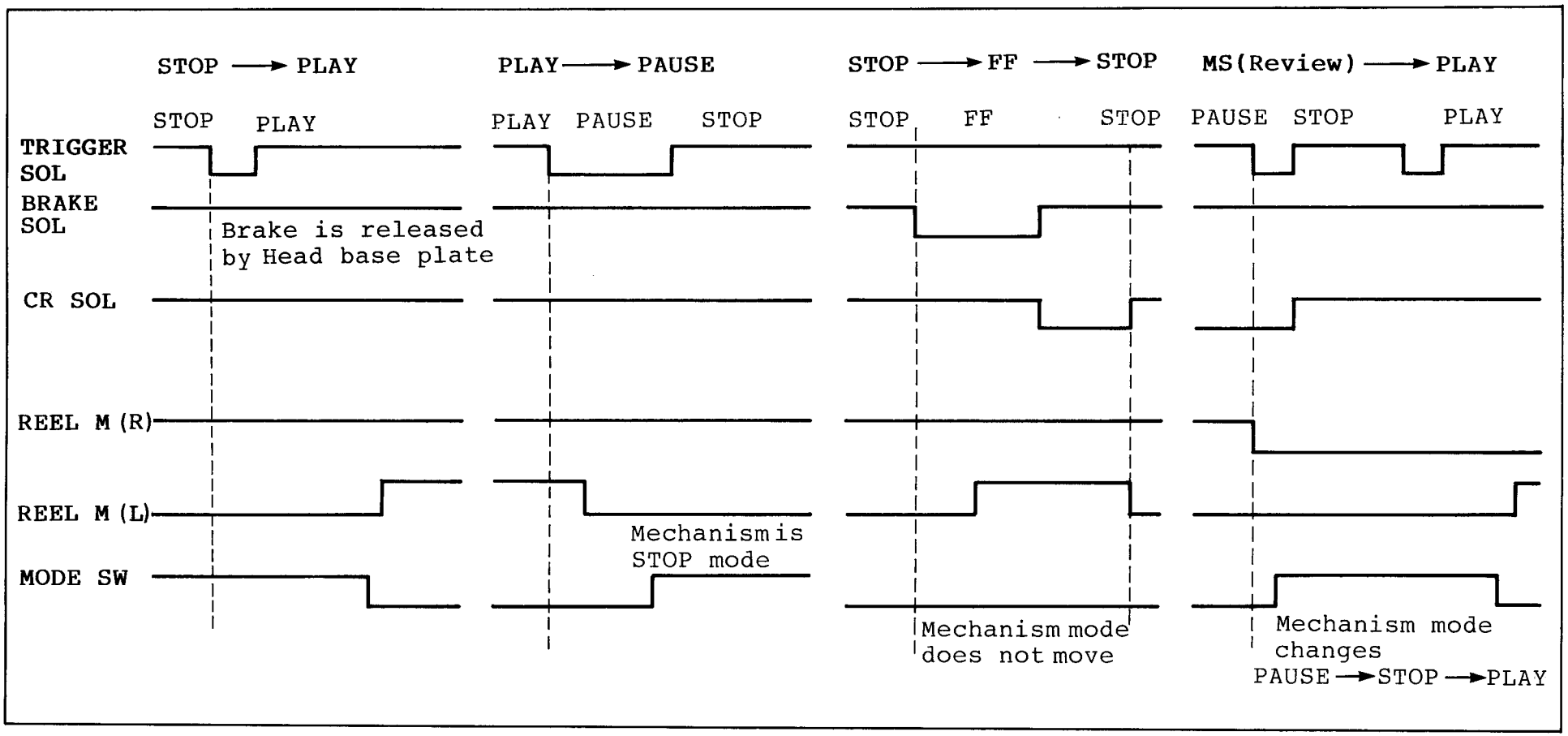
The trigger solenoid and the brake solenoid are controlled by the ON/OFF switching of transistors, and the CSOL signal is for the holding of the brake solenoid.

The take-up reel pulse and the supply reel pulse are supplied to fluorescent display IC-551 to become the input signals for the real time display (Model RS-B555 is not equipped with this function).

### Mechanism Control Circuit



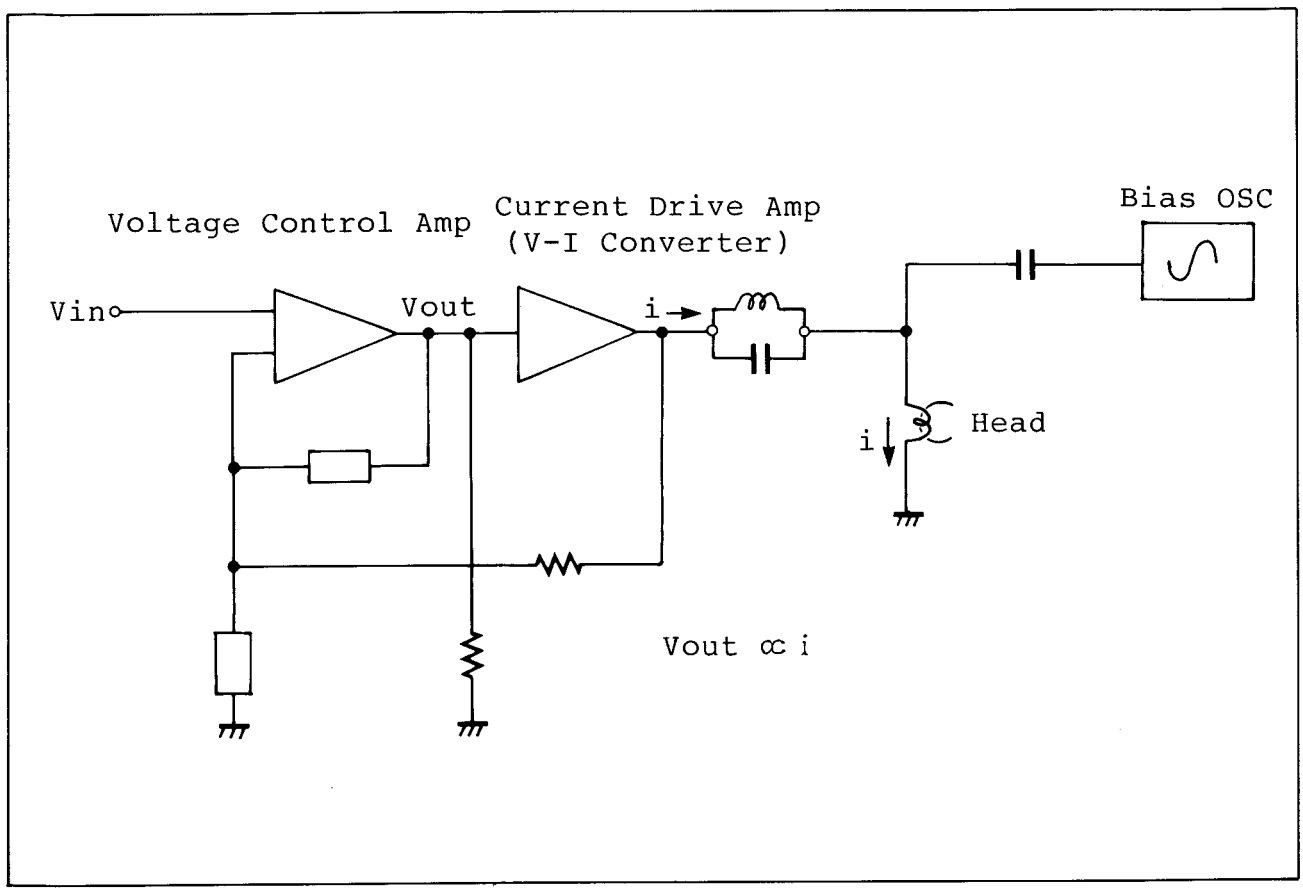
Timing chart of mechanism operation




(1) Mechanism mode is STOP when PAUSE is pressed.

(2) Brake solenoid is activated when FF/REW and CUE/REV operation.
(Brake solenoid become ON and after that, CR SOL become ON to hold the solenoid)

## 4. Linear magne-field Class AA recording amplifier




As in our previous Class AA amplifier, this new design consists of voltage control amplifier and a current supply amplifier and boasts true class A operation throughout. The voltage control amplifier incorporates equalizer elements in its feedback loop to provide a voltage output with recording equalizer characteristics.

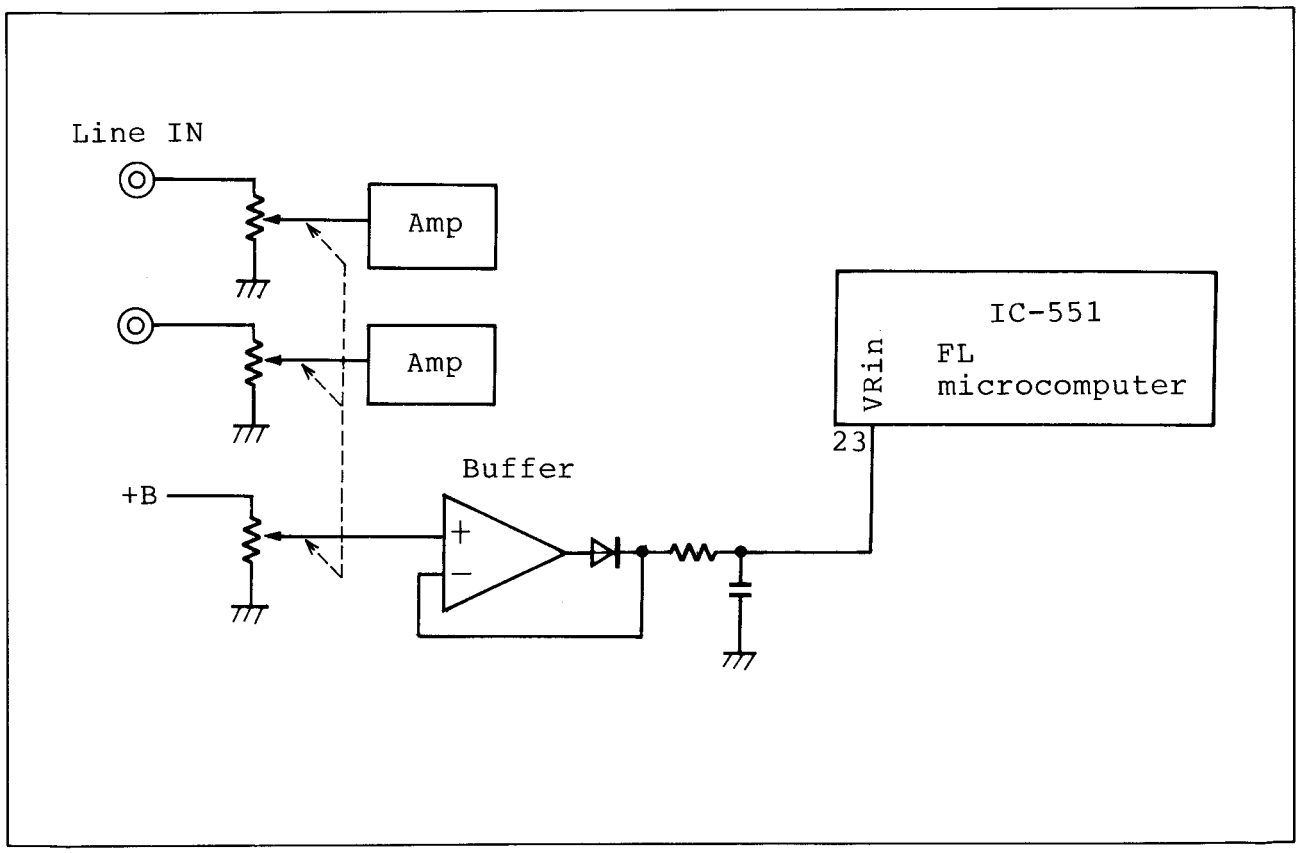
The current supply amplifier converts this output voltage into current, thereby supplying a current proportional to the signal voltage to the recording head.

In other words, even if the load impedance varies with frequency, the current supplied to the head is always proportional to the voltage control amplifier output voltage. This ensures that the signal filed generated by the recording head possesses the same gain and phase as the output signal from the voltage control amplifier and results in a remarkable improvement in waveform response.

## 5. APRS (Advanced Precise REC-Level System)

At last, relief with our new APRS system, setting the recording level is not only extermely simple, but very accurate as well.

The system uses a microcomputer to detect how far you turn up dor down the REC-level knob. It then calculates the new peak level to match the new setting.




First you set the deck to rec-pause and press the APRS button. The meters hold the highest peak reached during play from that point onward. At this point the reading on the meters is that for the current rec-level setting. If the level is too high, turn the rec-level knob down. The peak level shown on the meters goes down to reflect the new setting. If it is too low, turn the rec-level up. The peak level reading increases by precisely the amount you turned up the rec-level knob.

The Rec-level position is detected by voltage detection of 256 division of +5 volts.



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